uses them in its Q-Draft family of computer nided drafting

System X dispute

PICKETING continues at GEC lelecommunications at Stoke, Coventry where 250 System X development engineers have been locked out during negotiations on pay and working conditions. The men, members of ASTMS halfstath the men, members of ASTMS, believe that technology could cut their jobs by up to 30%.

Threat to jobs

THE first European customer for the eight million instructions per second Hitachi processor as the AS/8-7034 last year (CW, THE current lack of spending power threatens to cause more unemployment and problems than any introduction of new soon to be launched by National technology, says a report from Advanced Systems is set to be Centre d'Informatique Générthe Amalgamated Union of Enale, CIG, the Belgian owned gineering Workers' Technical. Administrative and Supervisory computer services group that has just bought the Lowndes-Ajax bureau (CW, June 12). Section, entitled A Guide For

Sample EEPROMs

SAMPLE deliveries of Hitachi's 16K-bit EEPROM (electrically crasable programmable read only memory) are planned to start this month. Volume production is to start the third quarter of this year. The chip is designated HN48016 and has a maximum access time of 350ns.

Turn UK into another California, says Sir Keith

AN ECONOMIC climate which will encoueurs to become venture capitalists must be on his recent trip to California. established in the UK, according to Industry of new London offices by the Leeds-based

mips Hitachi

CIG international director

Daniel Van der Plassche told

Computer Weekly that the 8

mips Hitachi machine would be

installed at CIG's Brussels

bureau centre later this year to replace an IBM 370/158. The in-

crease in processing capacity

would naturally be very consid-

The 8 mips machine is a version of Hitachi's M200H process

Sir Kelth had obviously been impressed by UK into another California

FOLLOWING the decision by BOC Datasolve to looking for a buyer for its ICL 2972 mainframe

drop out of the 2900 services business (CW, June Great Western uses W. H. Smith's ICL 2976 at

19) the bureau's VME/B contracts, mainly con-

version jobs, have been taken over by two organisations— Computel of Bracknell, Berks and a new company in this field, Great Western Computing of Swindon, Wilts. But Datasolve is still to provide vivices for its chemical and plans to open a customer centre in London in the autumn equipped with remote job entry and interactive terminals that will be used by cusputing of Swindon, Wilts. But Datasolve is still

July 19, 1979) not long before dropping out of the IBM com-patible processor business.

delayed because of the expected

H Series launch by IBM. But National has decided to go ahead regardless (CW, June 12) a move which now seems safe in

view of the life prolonging en-hancements for the 303X pro-

cessors just announced by IBM

Its relaunch by National was

rage successful high technology entrepren- his first meetings with venture capitalists, Sir Kelth also commented on the difficulty Systime had had in getting backing when it He said he was struck by how many of started. Although the fact that the money Secretary Sir Keith Joseph. At the opening them in California were British and by how eventually came from the National Entermany were technologists who had turned prise Board was "not exactly a delight for systems builders, Systime, Sir Keith said themselves into financiers. In the UK such me," Sir Keith said, it was true that the that the government is "trying to bring about a less hostile climate for business."

people are discouraged by taxation and low profit levels, he said, but he aims to turn the understand the computer industry."

Quest buys CIL QUEST Automation of Ferndown, Dorset has bought Computer Instrumentation from the US-owned University Computing Co. CIL, based at Chandier's Ford, Hants manufactures per plotters for customers that include Quest itself, which uses them in its Q-Draft family of computer rided described. closure

WORDSTREAM, the word processing operation of Management Assistance inc in the US (MAI), is being closed down after running at losses of about \$10 million a year. MAI is concentration centrating its resources on linking data and word processing and is shortly introducing its Dataword if package for the Basic Four small business sys-tem into the UK.

Wordstream was a sharedlogic word processor using floppy discs instead of hard discs and this unusual or hard discs and this unusual configu-ration failed to catch on in the US sithough it did better in other countries such as West Germany. The company has de-Germany. The company has de-cided the future lies in com-bining word and data proces-sing, although it will continue to support Wordstream cus-

The package for the Basic Four, already faunched in the US, will be called Datawrite here. It requires the addition of special full page (A4) screens and a daisy wheel printer to the Basic Four. WP and DP can then be carried out simultaneously.

Comput

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LATEST entrant in the part compatible processor stars:
West German chemical as
BASF which, as exclusive
reported (CW, April 2), as
market medium and assessed market medium and large IBM compatible mainting from Hitachi in Europe 2014

in South America. in South America.

The agreement is the state of the cover Hitachi's M.17, k. and M-200 models, the late of the computers and by Negle Semiconductor's News Semiconductor's News of the computers of the computer of the c Semiconductor's Name

of independence, Some 400,000 shares are being retained for sale to Ferranti The Japanese compar Fujitsu, has developed is workers. The NEB paid £8.7 millon for its stake and should raise compatible version of Mix £54 million from the sale. BASF plans to offer machines with IBM open • See Company News, page

The agreement exclu US, where Hitachi is with mainframe market we own name. Fujitsu bester up with TRW to sell computers in the US (CW) 12) but is, at present ex from the large-scale Walframe market by its again with Amdahl Corp.
Fujitsu sells its country

software.

to the big Hitachi mit through Slemens in 🗪

the standby procedures. CIG's plans for Lowndes-Ajax include making its services available to CIG customers on the Called in at Abacus the Continent over CIG's own BUYERS are being sought for November, Show Financial, a

data communications network. Abacus' Computers, the Texas-based holding company, Van der Plassche said that two London-based micro systems of the bureau's services of particular interest were the Simplan
corporate modelling system and peripheral distributor.

London-based micro systems: was near to taking over (CW, November 1, 1978) but eventuely the interest was near to taking over (CW, November 1, 1978) but eventuely decided against the investcorporate modelling system and led in by its bank.

Meanwhile, to cover the

Thames centre to enable former

Datasolve customers, who have

been carrying out their conver-sion work at the Sunbury site, to

carry on working there.

Great Western managing director, Alan Halfacre, worked

with the VME/B operation at W.

H. Smith before setting up GW.

interest to the 2900 user com-munity is a proposal by the

Computel bureau of Bracknell,

Berks, to set up what it calls the "2900 Standby Club." This would

enable members to maintain

their own back-up systems at Bracknell with periodic trials of

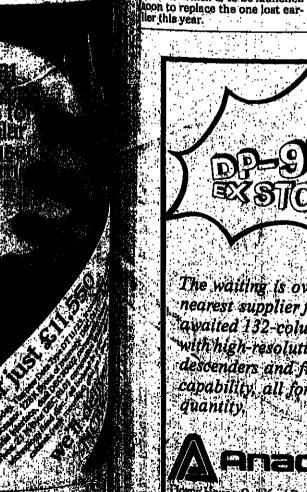
Another move that could be of



IBM 3033 N12

Atlantic for Flexidase :terms.on 01-583:9481

shape and it is under could be bought for £50,000 plus sufficient co ment. The group is a major keep it going.



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NEB places

Nigerian coup

Tank standard

Circuit lottery

ICL has won an order worth

£670,000 from the First Bank of

Nigeria for 60 of its 1500 series

terminals. They will be used for

data capture and local proces-

sing in the bank's 30 branches in

the Lagos and Ibadan areas and

will transmit data to the bank's

ICL 1901T and 1902T computers.

FERRANTI'S F100-L 16-bit

microprocessor and its family of support chips have been chosen

as standard for use in processor-based subsystems in the British Army's planned main

battle tank, of which 1,000 are to

A LOTTERY is to be held for the

maining circuits on an RCA

ellite which is to be launched

Ferranti stake

BOWING to pressure from Scottish MPs, the National En-

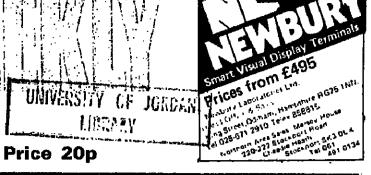
terprise Board has abandoned its

plans to sell its 50% stake in



Rush Deliveries Are Our Speciality

Thursday, July 3, 1980



Intel unveils high-level plans

operating systems and large program sizes.
Planned products, revealed in Computer Weekly last month (Micro News, June 19), include two new versions of the 8086 16-bit

Number 713

problems which have hampered IBM are

AS part of its efforts to persuade

the government to apply its single tender policy to the Inland

Revenue's huge PAYE project

ICL is carrying out simulation

of a 1,000-terminal network on a

big 2900 machine running under VME/B with IDMSX and

the teleprocessing system,

First described in Computer

Weekly early last year (CW, March 29, 1979), the PAYE

scheme will ultimately involve

more than a dozen large scale

installations each supporting up

The simulation is part funded

by the Department of Industry

which strongly favours a single tender approach for the PAYE project. Not surprisingly, ICL's competitors like IBM, Bur-

roughs and Honeywell want the

contracts to go out to tender and

from January next year the

single tender policy should technically end under EEC rules.

place at the West Midlands Gas

computer centre at Solihull,

Warwicks, where 1,000 ter-

The simulation work is taking

to 1,400 terminals.

micro, and a 32-bit two-chip set. The same kinds of software development The device will be programmed entirely in

high-level languages, with the systems implementation language a superset of ADA, itself based on Pascal. Other planned languages are Cobol and Fortran and there will be no assembly language.

INTEL'S plans for the next three years, announced at the company's Fair at the Wembley Conference Centre last week, stress high-level languages, microcoded operating systems and large program sizes.

Planned products revealed in Company's The device will be programmed entirely in the control of the programmed entirely in the control of the control o system are so far available.

intel's move to out substantial parts of the iAPX 432 operating system into microcode threaten to lock users into Intel software in just the same way as users of IBM's large plans to sell its 50% stake in Ferranti to the highest bidder and has, instead, offered most of its holding for sale through a group of stockbrokers. The shares will be placed with institutions which must agree to hold them for two years, systems are locked into IBM software

UPHEAVALS are continuing at

Top men

Infoline, the online retrieval service rescued from financial col-lapse by Robert Maxwell's Pergamon Press (CW, June 19), with decisions to change the computer and bureau used, and probably the operating software as well, and the resignation of two senior staff. The switch to an IBM 4300 at Scicon from GSI's Univac 1100 is likely to mean the ditching of the Basis software, on which Infoline had spent a great deal of develop-

Infoline director David Martin and marketing manager Jeremy Sergeant have both resigned, and may be followed by other

The advisability of switching machines and retrieval software was aiready being looked at. Alternative retrieval software packages now being considered are those already in use with Infoline's competitors: Dialog from Lockheed, Orbit from SDC and IBM's own Stairs. Basis, or iginally developed at Battelle Institute in the US, was found to have serious difficulties in handling the large files (two or three million records) that Infoline needs to provide. There is, however, an IBM version of Basis

that could be used. Details of the Pargamor takeover have still not been eleased, except that Pergamon Is now the sole owner. The Department of industry declined to comment on the fate of the £600,000 of public money inv ested in the project by the DoI and the British Library.

... the 2684 Uses

include such factors as operator wait times which are continually ICL staff vote to strike

voted overwhelmingly for a one-day strike today (Thursday) and a ban on overtime. About 20,000 are affected by the pay awards being negotiated and ASTMS claims a membership of 9.000, while others are members of APEX, TASS, ACTSS and

ICL internal development tool

called Communications Test

Generator. The generator runs

on dual Communications Net-

work Processors which are

linked by simulated remote

communications lines to the site's 2976 which is shared by

For each terminal being simu-

lated the generator can call on a

variety of input message

sequences, known as "scripts"

These are stored on disc and

CL and West Midlands Gas.

A further meeting of delegates from the unions is planned for next Monday to discuss escalating the action to include a ban on contract work and selective strikes. A £1 a head voluntary

STAFF at ICL have rejected the company's offer of 12% and support the selective strikes. Tim Webb of ASTMS said:

"This is our first national dispute with the company and we regret having to take this action particularly because ICL needs the support of its staff during the negotiations on the Internal evenue contract." An ICL statement said the

company wanted to meet the negotiating committee to seek "any possible routes to reach a solution which will not prejudice the company's com-

IBM cuts 303X prices in UK

The 11% cut in the UK covers all entry level 303% processor models and all models of the 3033. In the US most maintenance, software and services prices rise 10% in October, and purchase and rental prices for most DP Division products rise

processor purchase and lease. Systems Division prices rise 7% prices in the UK — but the The company gave no explana-parent company in the US has tich for the UK cuts but blamed raised prices there right across inflation for the rises in the US.

.000 auto tellers

NATIONAL Westminster's US

Bank, New York-based National Bank of North America, is in-stalling over 1,000 IBM counter and automatic teller terminals in its 167 branches

INSIDE THIS WEEK'S CW....

Prize Crossword . . Page 46

Computerview
Letters
Sneg for BABF...
Downthine
Focus in testing DRMs
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Mainthining your system Maintelning your sy Software File On Spot People and Events Of Twension on IOI.

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introducing the Cifer 2684 User programmable terminal at the top end of the 2600 range of compatible VDU's, The 2684 provides a full 64K bytes of user RAM, supporting industry Standard CP/M operating system with in built 260K byte floppy disc drive. in addition to the diec processor system all the features of the 2632 terminal which acts as a 'front end' processor Dual Z80 processor

Programmable Terminal

New from Cifer...

Single and Double Density Disc

One of the latest entrants in the IBM comparible processor stakes is the Elbit Anat, seen here under test at the company's plant in Haifs, israel. Built into the same deak unit as Elbit's Pact business computer, the Anat

the Anat processor, which comes in three models covering

the power range of the IBM 370/12 to 148, is completely contained to

contained in housing beneati the display.

● The Elbit story — Page 16.

Drives . Full range of CP/M compatible.

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COMMA COMPUTERS LTD BRENTWOOD (0275) B1 (13) corporate modelling system and a personnel management service based on the System 2000 limit of its borrowing facility and majority shareholder John Kennedy, City financier and an Absolute distribution of the company had reached the limit of its borrowing facility and majority shareholder John Kennedy, City financier and an Because of Peter Merrick's Abacus director, was not predeparture earlier this year, one pared to extend his investment, of Van der Plassche's first tasks Potential buyers have already been approached by receiver Bernard Phillips & Co. where was to find a new managing director. Nick Rows, formerly European president of the David Buchler said he was eager American Express card division to hear from possible purchasers at Brighton, has been appointed. on 01-580 0784.

Rowe worked for ICT between Abacus mana
1964 and 1968 and then set up Derek Rowe to Abacus managing director Derek Rowe told Computer

the Hoskyns operation in New, Weekly that a new backer had york.

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son junctions to become the basis of the next major generation of the next generation g



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Computer Weekly has a circula-tion each week of over 80,000 including the highest fully requi-sited circulation in the UK.

Company Whichly in spirit trait of challes in the justice of the Unit and the units Company. Associate, then he was secretaries, incompany, associated by the public secretaries, incompany, and the property of the property

Exterior (III)

with the control of t

COMPUTERVIEW

IN its own way the agreement just made by ICL with the Office of Fair Trading to change some of its commercial practices may appear to resemble somewhat the consent decree imposed many years ago on IBM by the US government that regulates the ways in which the industry giant deals with its customers.

But the OFT has imposed no major changes on ICL's policies and allows the company to continue with practices that are nowhere near as restrictive as those which IBM is obliged to follow. The OFT agreement, in fact, strengthens rather than weakens ICL's position in relation to its customers and the suppliers of used ICL machines and plug compatible hardware because it gives ICL what appears to be official OFT approval for s policies as they now stand.

These policies still include ICL reserving the right to refuse to maintain a machine after as little as five years and to demand a compensatory levy or licence fee from a user who installs non-ICL memory or peripherals. The only significant concession squeezed out of ICL is an agreement to abolish the 20% maintenance surcharge on old ICL machines if ICL agrees to service them. Hardly worthy of mention is the reduction from 20% to 16% in the maximum levy on foreign equipment attachments.

But on the question of ICL's maintenance policies the computer industry and computer technology rather than a lack of concern about the possible undesirability

as usual

OFT has admitted that it did not lightly reach its decision not to proceed with its investigations and on the matter of the levy the OFT has told ICL that the agreement just made should not be taken as an irrevocable acceptance of the principle of the licence fee. The company is warned that the agreement should not be regarded as precluding the possible use of the OFT's powers under the new Competition Act which is intended to strengthen its regulatory muscle.

So the OFT's main shortcoming in dealing with this case appears to have been a lack of understanding of the

affected by the policies have done their uters persuade the OFT to really get tough with ICL but users in general have made very little fuss. Some timid attempts in the past by the ICL Computer that the policies are strongly rebuffed by the company and about years ago ICL told the CUA that it had no inless whatsoever of changing any of its policies line another word was uttered publicly on the subject late last year when the OFT started to threaten ICL the Competition Act (CW, Secember 13, 1879); obviously decided that its approach with the OFT act. obviously decided that its approach with the OFTage be diplomatic rather than heavy handed and approach appears to have paid off."

t seems fairly clear that the two users who pair challenged ICL over its attachment policies, the wich Union Insurance Group and Bradford Councily. an unusual independence of mind, and they confin this by subsequently changing their mainframe.

of ICL's policies. In other words the OFT's fault has inexperience rather than indifference. But, the real reason for the failure to bring the enthusiasm for the cause on the part of users for affected by the policies have done their utags affected by the policies have done their utags users in general have made are rather with ICL but users in general have made are rather with ICL but users in general have made are rather with ICL but users in general have made are rather with ICL but users in general have made are rather with ICL but users in general have made are rather with ICL but users in general have made are rather with ICL but users in general have made are rather with ICL but users in general have made are rather with ICL but users in general have made are rather than indifference. Snag for BASF'S Comparing the BASF'S Comparing the

market with a full range of top end processors have hit a snag, memory and a 16K-byte cache. and so far the company only has agreement for the Hitachi M-170 (CW, April 26).

The company also wants the M-180 and the M-200H to make up a three level line called Series 7; These machines are already marketed by Olivetti Computers

and by Nasco, successor to Itel. Key advantages BASF claims to offer are prices even keener than the 15 to 20% discount it offers on their IBM peripherals, coupled with "very flexible" cases, all written by BASF itself. Most of its large scale IBMcompatible disc drives come rom the joint Fujitsu-Hitachi company Nippon Peripherals, while its tape drives come from

Storage Technology.
The M-170 appears as the but the CPU cycles at 42 BASF 7/60 and is rated equal to an IBM 3031. Significant difnanosecond compared with 57 nanoseconds for the 3033. ferences are up to 8 megabytes of main memory and eight twice as powerful as a dual pro-cessor 3033MP system, and is channels against six of each for the 3031, a 50% lower power requirement, and 30% less running under a single copy of the MVS/SE operating system. A key plus that BASF is plan-ning to offer with the 7/80

weight.

BASF plans to offer the M-180 in three upgradable models, the

THE plans of West German chemicals giant BASF to enter the IBM-compatible processor more power than the 3031, offers about 83% instructions to give high speed 1 to 8 megabytes of main execution of vector and matrix arithmetic programs written in Increasing the cache size to 64K-bytes and doubling the

The only operating systems BASF is proposing to support are MVS/SE and VM/370. maximum number of channel and number of megabytes to 16 turns the N model into a 7/70. All the Hitachi machines are

The AP version adds a second air-cooled, whereas the IBM CPU, but no more memory or 3032 and 3033 require water cooling. BASF supplies the sys-The 7/70 model is rated at tems complete with motorbetween 5 and 15% more powerful than the 3032 and the AP

500 new jobs

3032 are not particularly useful, MOTOROLA plans to increase its MOS capacity and this could since that machine has effectively been superseded by the mean a major investment in the

> Sites in the UK are being considered for the plant and East Kilbride in Scotland, where Motorola already produces the 16K micro chip, is a strong con-

The new plant will provide



Codasyl

representative BARRY OAKLEY, software de

velopment manager at Micro
Focus, will represent his firm on
the Codesyl Cobol Committee,
responsible for controlling the
future development of Cobol.
The UK software house
recently became a member and is one of only two European companies represented on it, the other being ICL. The committee is compased

of Cobol users and implemen tora and operates by means of amendments to the Cobol Journal of Development, which is used by the American National Standards Institute (Ansi) in preparing new language standards.

Hawker takes off for systems market WITH several years of applica- and DSS sales manager Terr

tions software design experience Ballard expects to extend equip-to draw on, Hawker Siddeley ment and systems sales well Dynamics Engineering part of beyond the major customers the £1,100 million Hawker already served. These include Siddeley group, has set up a the Defence Ministry, the dynamic software service divi-. National Coal Board and the ion, to win a bigger share of the rich systems market. Starting with a £1 million inv-

include Data General, Mod-

Computer Automation.

comp, Digico, Ferranti and

Manager of DSS is John Ban-croft, who expects his present

professional staff of about 35 to

oc doubled by the end of the

year, said "We want to put DSS

into the top 10% of the software

and systems league in the next

HSDE is already a prime sup-

oller of control and monitoring

systems for a wide range of

applications in the aviation,

marine and mining industries

Most of the present Hawker Siddeley systems are based on estment in personnel, hardware Intel devices or Ferranti's F100, and accommodation, a complete with Coral 66 and Mascot as the applications design and devemost frequently used languages. ment service is being offered. The use of Ada is now being The aim will be to join forces studied. Development work at with hardware manufacturers to the DSS base at Hatfield, Herts, make join bids for contracts. Partners in these ventures could ment PDP 11/70.

Beats predictions

WITH more than 100 systems installed worldwide and over 150 for delivery in the near future Sperry Univac's V77-800 mini has outstripped the sales predic-tions made when it was launched last year. Applications are equally divided between ercial and scientific users and in the UK customers include Surrey County Council, Bass Charrington, Clydesdale Bank and the Metropolitan Police.

LETTERS to the EDITOR

Where do 'better' recruits come from? opportunities for graduate mothers

the feature headed "Which People Make Best Recruits?" (Page Six. June 12), perpetuated the apparent ignorance about there being no degree courses in subjects related "to the require-part of the degree course for ments of the industry."

My own institution, The City University, is one of several universities and polytechnics which now offer DP specialist degrees (BSc in Data Processing Systems in our case) in addition to the longer established computer science degrees science degrees.

Higher education is now reasonably well staffed with individuals who have very respectable industrial backgrounds n terms of DP systems analysis

The discussion around the juestion posed in your headline should have shown us the courtesy of asking whether graduates from the kind of degrees I've referred to will make "bet-ter" recruits to the DP industry. Even if you remained sceptical at least we'd have something

specific to react to, Sadly, I have to report that at present the national publicity about the need for trained people in the computing field seems to have stimulated dramatically the applications for admissions to computer science courses, while leaving the DP/ systems analysis area rather ambitious sixth formers.

perience in a vocational degree, many institutions insist on the students straight from school. Placing these students is not as

about it! Being very aware of the importance of practical ex-Can I appeal to employers to look favourably on requests to find a place for such students as something equivalent) being they represent the potential part of the degree course for leaders of the future?

ALWYN JONES easy as one might expect.

"We can't afford to take them City University Business School, at present." "We don't take London.

Responsibility to the customer

Licensing Centre at Swansea and the CHAPS banking system project (Letters, March 27). It is not my intention to knock either project; in the former's case many have already done so and in the latter's many no doubt will, I would, however, like to make the following observation based on experience of the

DVLC project. This project was born in an age when giant computers were considered to be the panacea for considered to be the panatea to: cost-effective data processing. Cantralisation of processing had to be achieved because pro-

hibitive hardware costs rend-1984 and all that...

THIS week's example of the strange things people say in the media

That they were not, or if they
shout computers was sent in by Frank O'Shea of Rathfarnham, were that such advice was

Se what is a miore chip? It is a better but, scaled down so mirrousle that it can be sloated distribution that it can be sloated distribution by by of a needle. Its trade name, stippe objects from the scientification. It is a shipper of a needle. Its trade name, stippe objects from the scientification of the stipper of the stipper objects from the property of 100,000 translators and operations and operations and coparations could be built on a single officer, or miore, ohis.

It is less forward was not office in a dequirement or miore disconnicts produced by the AST hate [Callfornic] they say, migratechinology.

inigin technology

has been satablished since the intredication of the Volkswagen ingtor car. Prish independent Erdington, Birmingham

I WAS pleased to read Philip ered alternatives unacceptable. Howell's defence of the hard-The project was designed ware and software at the now infamous Driver and Vehicle and software available at the

time and, allowing for teething troubles associated with any new range of equipment, both have combined to give an acceptable level of service. However, I do not think ICL's responsibility to its customer ends there. By any standards, this was/is a major ICL account (in fact a prestige account) and ICL's investment in supporting the account was in proportion to

the customer's investment in ICL products. The customer should have been the recipient of the finest professional advice and counsel that ICL could muster at all stages of project development and especially at meetings

where major policy decisions allowed to go unheeded, is something for which ICL cannot be blameless.

CLIVE DIXON

GOVERNMENT COMPUTER REQUIREMENTS

MATIONAL LIBRARY OF SCOTLAND LIBRARIES COOPERATIVE AUTOMATION PROJECT

Plea for career

receive asking for careers advice are several from people in their late thirties and forties who want to enter computing. Some have applied for a TOPS programming course but have been told that above 35 years old they cannot be controlled the he considered. Some of them have a business background and I advise them to try for systems analysis; others have teaching experience and these I advise to alm for instructing.

However, this still leaves a significant number, particularly of graduate mothers, who might well be capable of becoming the "mother" of a programming de-

partment, with 20 years drained loyal service to give.

We could accertate the suitability by including the suitability of all employers with caugagest. I shall be glad will from any of your readen what plagued by job-hoppers with an open mind and are preparationed in a potential logical employers.

GEORGE PENS

Careers Projects May National Computing Cente, Oxford Road, Manchester M1 7ED

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Free mini helps Poly to run technology course PUBLIC spending cuts have 11/34 described as being on

Technical Education Council Higher Diploma in Computer

Technology.

The course, introduced last year, is aimed at providing would-be field service engineers with a broad knowledge of computer technology, including Basic programming, systems

been alightly ameliorated for the "permanent loan." H-P, DG and Polytechnic of Central London DEC each sponsors seven where Hewlett-Packard has students at the moment. To get presented an HP 1000 minicom- on the course they need at least puter system worth £45,000. The one science A level and they nachine will be used primarily must spend the summer vacaby students sponsored by H-P on tion working for the sponsor.

model 75% more powerful.

3033N in IBM's catalogue.

However comparisons with the

At the top, the 7/80 is claimed

more power than the 3033; con-

figurations are almost identical.

The 7/80MP is claimed to be

simply two 7/80s tightly coupled

Accepting the HP 1000 at the handover ceremony last week Professor Colin Adamson, the Rector of PCL, pointed out that PCL's close links with industry meant that it was not being affected as seriously by the cuts in public spending as others.

Prof Adamson referred to the software and communications microprocessor training centre Apart from H-P, students are also sponsored by Data General and Digital Equipment and the course already has a DEC PDP.

Integrated Computer Systems, a firm that specialises in micro-processor training courses (CW, July 26, 1979).

X-Data celebrates with 15% price cuts

year of trading by cutting the this would be enhanced.

Prices of matrix printain by 15 %.

The company is now offering the polyment in all Haworth by 15 %.

DP280 at £1,770 each on orders of 50 units, a cut of £310 per printer. On the same terms the DP125 comes down to £1,350, a out of £240.

Managing director Poter Hawarth said that during X-Dan's second year over £1 million worth of equipment was delivered. The forecast for 1980/21

Continuing this policy, it was planned to introduce a new line of video terminals later this year as well as two new models of the highly successful anall scale Microline-80 matrix printer.

GOVERNMENT COMPUTER REQUIREMENTS

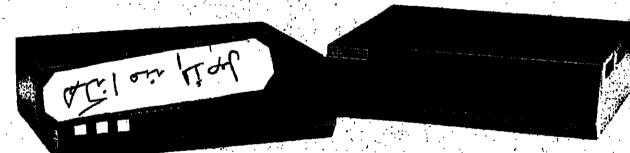
MEM CHANGEL, NOTTINGHAM REL MG. (CP 0/17/CM)

A reicht/small stird controlled system is required by No 38 Control Worldston REME to process intended and Production etablistics. It is envisement that the high-thier's will include a VEUL stirm disc system of 2 Mathyses and a stranded printer, Applications activate must also be provided.

Suggistion in received by many

Active from the crime of the Countileral Southernance their he man to the CRIMINAL COMPANY (Cont. SA.). The CRIMINAL COMPANY (Cont. SA.). Chickenge, Motors, Motors, Cont. Sa.). Chickenge, Motors, Mary, 1994 (cont. Sa.). Control of the Countileral Control of th

The microcomputer with storage to spare



RAIR Black Box

database applications.

To: PAIR Limited

| Cl Pleastifemi literature

If you're a microcomputer user, or have investigated the use of micros, chances are you have come across a major stumbling block for many serious

microcomputer applications -too little data storage capacity. It is to solve just this problem that we have introduced our Black Box Hard Disk System.

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Most important our Hard Disk System is fully supported by all our standard software, including our enhanced disk operating system, BASIC, FORTRAN. COBOL, PASCAL languages, etc. Existing applications. run without modification. and new applications can take advantage of our enhanced high-performance database software. And our unique BACKUP package makes security backup quick, simple and totally reliable. 🚵

What's more we're not just making promises. Our Hard Disk System is available now! either to enhance existing : systems, or together with our Black Box, as a complete: hard disk microcomputer. What does it all cost? At £2500 our Hard Disk gives you mainframe performance at micro prices.

Downtime

Now CAD comes to the crunch

WHAT with the shortage of staff in the Health Service these days there is of course tremendous opportunity for computers to help out. The latest development, I am pleased to report, is in dentistry, where the supply of Australians coming over here to practise has dried up pen-ding the introduction of cheap Freddie Laker flights from

Never fear, this latest wonder of space-age technology enables any garage mechanic from Bolton to sort out your choppers without having to go through years of expensive training. The CAD (Computer-Aided Dontistry) System prompts him at every slep along the way.

Of course it helps if you are wall-eyed so you can keep one eye on the screen while the other is peering down the patient's gob. The next step is to have a Puma robot to wield the drill and forceps.



You just can't trust statistics

DO you get as juded as 1 do course. They had been told about this never ending that they must train 12,000 ively produced reports about how British industry is doomed, and how many millions of programmers we are short, and how many Northumbrian spoke-shavers are going to be put out of work by micro chips? I sometimes think

Anyway, a feature of reports is that they are self-replicating. Only a few reports have to come out before you can start writing reports about the power plans and projections, reports, until everything has. The originator would cringe

people in three years, an impossible task for one organ-

It occurred to Daniels to ask where this figure of 12,000 had come from. After much investigation it turned out that one day someone in the Depart-ment of Education and Science if all the effort put into the reports were devoted to solving the problems, these latter would disappear in no analysts does the country

"Ooch, 12,000?" came the reply. For years afterwards this figure was quoted in report after report, in studies, manseen repeated so many times it with embarrassment every cannot be disputed. Alan Daniels of Brunel University was talking about this the other day. He was with the coughed at the time and said something different? The untogether the systems analysts' with embarrassment every time he saw it. Who knows what the state of our industry would be now if he had coughed at the time and said something different? The untogether the systems analysts' same.

GILB'S MYTHODOLOGY

How Infotecture helps save on people-power

made what I hope was a provocative remark. I asserted that our present professional staffing and supply problems are not really the result of too much work for too few people. I asserted that at least part of the problem was that we lacked a professional class of system rchitects, which I'd like to call infotects, trained and motivated to solve the manpower problem before it becomes one.

I mean that somebody at the beginning of the project should identify the fact that there is a clear limit on the available people-power, and make that fact central to the total architecture of the system. There is a choice. There are approaches to solving the real user problem in a practical, timely and economic manner, though not necessarily in an idealistic and "Not Invented Here" manner, which require substantially less people-power than the conventional pro-

grammed solution.
What I am asserting is that you can design infosystems so that human development time is reduced substantially. You might have to sacrifice some qualities, resources, costs and functions to do so — but after all, that is what architecture is all about. Compromise: You can't have it all at once. And if you insist on having everything, you must pay the price.
I think I would like to move

tions, and go to the source of them: experience. Let me give an

example from my own practice. In a far-away land and a faraway time there was a 100person programming depart-ment which had worked ten years to get its 300,000 lines of Fortran code correct for a national taxation system. The new online, database computer was going to be delivered in six months, and one had promised the Minister an online demo in

seven months' time. The Chief of all programmers announced to me informally in the pub one evening that the plan was to rewrite everything

At first I was sure I had misunderstood. Later 1 let myself be convinced that he was serious, even if that meant all one hundred people, twenty hours a day, seven days a week for the next two years, until the project was brought in late.
I asked for and got a shot at an alternative Infotecture, Not

least, I got support from the big boss. The one who was responsboss. The one who was responsible, if things went wrong, to the Minister. The rest of the gang soon became my enemies, for reasons which I was later to The first step was to ease

conversion by translating Fortran to Fortran. At my request we asked and discovered that the supplier was just about to release a Fortran conversion aid.

The administrative subroutines for character-oriented data were not included in the package, and with a move from a four to ten-character-per-word machine, they were important. In order to convince my client that his was a straightforward conversion I had to personally flowchart the logic for the most complex routine.

The technical trick was an old one of Fortran portability: only four characters per word were utilised in the record buffers of the new system. My client was convinced before this magic trick was revealed, that it was easier to manually rewrite about 150,000 lines of code.

The next step was to declare the master files on the old and new system to be physically and logically the same. This eliminated the complex files they had planned — a quicksand trap they were already deep in, and kept the main updating in a safe

Then the online database was created by loading a master file. or abbreviated extract of it, straight onto disc files. No in-dexes or sorting, just a straight sequential load. Record retrieval was via a binary search, which with rough estimates implied a maximum one-second search time for the estimated eighty rush inquirles per day. Once all the high-volume updating was in today before we start more put back to batch, and all data Infotects into our organi collection was already on structure?

separate minicomputers in cold batch system (interestingut, batch output to the but update), then there was nonthan a few online inquir-which required immediate ponse. An index would more than it saved.

This Infotecture created heated debate. I was told b argued for the next the months about whether said simple solution was possed They finally accepted it is completed the project on the estimate they saved hundred man-years. Just before its found out the real reason it they wanted desperately to the whole thing in Collins in Collins in Collins in Collins in the country, using Fortran for administration work, and they couldn't jobs without the experiencel
I have many more such a

periences from varied count and application areas My m clusion is that an awfulkt people-power is being with through lack of resource. architecture — sorry, Infes ture. Just as we are beginned; recognise that better archie-tural decisions can save late. human effort and energy of non-human variety: we 🛤 also wake up to a poweful' stant" solution to our p resource problems. Or dos really have to get into a far as desperate situation than we

FOCUS

A down-to-earth DPM test

BEING a computer industry examination compiler must be a frustrating job. No sooner has the latest technology been laboriously assessed and hesitantly introduced into the syllabus than it has to be disparded in favour of the next

The examination world is very much an academic exercise, masterminded by individuals more than somewhat removed from real-life computing. Hence the general emphasis on number-crunching and CAD applications at the expense of such areas as datacoms, minirocessors and management ormation systems;

Show an examiner a print-out and unless it features algebraic and analogue computation, he fails it. Similarly, present a Cobol program and it will be

The individual's track-record counts for more than his ability to answer irrelevant questions on such topics as: The calculation of function values, and the plotting of graphs of exponential; logarithmic and algebraic lynctions; Use of and response to imagination and humour in explanation and persuasion (IDPM 1980 syllabus).

A typical example of being out of touch involves viewdata Preatel. Few scademics being directly involved the exam compilers onose to ignore the topic, yet prestel could well unleast a whole array of new technologies and management information possibilities. Seldom do the exam papers dwell on such matters as servicing contracts and recruitment each of vital concern to Demanagement and installations.

What is clearly required is a specialist computer exam, one which covers such topics as where best to dry out operators' wet boots and how to differentiate between the company MD and a visiting IBM salesman.
The Focus-style exam would

invite candidates to muse on such questions as: 1. Why does the DPM invariably visit the program office during a spirited discussion on the merits of egalising pot? 2. Account for the site engineer being on a course during the peak load periods. 3. session is under way, the company chaliman arrives to show off the installation to a colleague. Evaluate the effect of cigar amoke and brandy fumes on a) the disc storage subsystem and b) smoke detectors.

IBM launched the 370 range with vices. One sent of the vite the 185 and 185 models first off the production line in February and April of 1871. The new town of Milton Keynes broke supplying weapon control with tradition of poundis order than worth £3 million. A ling 1CL kit and bought a "first" was claimed for a £245,000 Burroughs \$3500. based system. The National Computing Centre revised its principal graphic interesting and set up three groups to over development, services, margan supposed the life in particular and set up three groups to over development, services, margan supposed the life in well would sake the life set.

Maybe it is time an examination to duced to evaluate examination to the BCSL, which has long before the BCSL, which has long before the BCSL. fighting a losing battle with and Guilds and the newly saging BEC/TEC Nation Awards, is now having lost tend with a restructured lie

Without doubt, howers
IDPM exam should be all
for all levels of consultant

auditors. One typical qu calls for the der understanding of the open of a computer and its perper now avallable. mercial operating cond least the DP team would the have to explain to auditing team that it is it possible to mark off directly on the VDU, without a green bire. available to meet TEN YEARS AGO...

computer can be used for data processing, data entry, word processing and scientific calculation. More languages. Use of two high level languages, Cobol and PL/I, is almost unique

industry compatible interfaces.

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processing network. No expensive modifications

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providing the user with a true distributed

to hardware or software are necessary

and gives the user great flexibility Applications programs in both languages, including the highly sophisticated Q1 Financial Accounting System, are

More storage, 5, 10, 20, 40, 48 megabyte Winchester Disk drives are practically any storage requirements.

More or less. Less space. No special environment required. The equipment is so compact it can sit on the users desk. The cabinet contains the entire system including processor, advanced plasma display, storage, printer and communications facility. It measures only 60cm square x 22.5cm high (24"x 29"x 9").

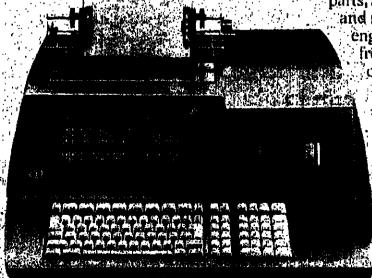
Less strain. Advanced plasma display, without terminals can be linked together by using multiplexors. the normal flicker associated with conventional CRT's. Allows the operator to work for long periods without eyestrain.

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> parts, and makes servicing and repairs by Q1's field engineering force a troublefree and economic operation :

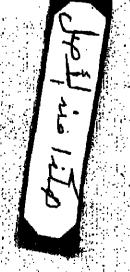
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Choosing a computer is a question of philosophy

When it comes to the crunch it's all a question of need versus cost. Of course the easiest way is to buy a sull that's too big and then grow into it. Unfortunately it's also the most expensive way. And you always run the risk that it won't lit you properly; now of later.

This is where our philosophy comes in: A NORD computer system sets no fixed limits. It becomes what you yourself make of it. A system of hardware and software modules which can be treaminged or added to when your needs change, regardless of your Initial configuration or your

What today la a simple system for order processing or stock accounting can be extended tomorphy to become a complex system for distributed data processing or production control. You need never take a step backwards. The equipment and programs you build up, you keep. You just



you think our philosophy matches yours, call us we'll be pleased to talk to you

THE management and deployment of programming staff through the life of a development project appears to be a serious unresolved problem, according to speakers and exhibitors at the NCC. Randy Jensen of Hughes

Aircraft Corp stated the problem succinctly. "The million monkey approach won't work. You can't get a project completed in zero time by putting infinite resources on it. Projects tend to get stuffed up as a step function. In order to ensure that there will be enough people on the project later on, the tendency is to put too many people on it initially. so that there are more people

there than can work effectively. "As a result the schedule slips, and so more effort is brought in to try to speed it up, but that approach does not work. The net effect is to make the project

What we are after is efficiency, and that means the minimum number of dollars for the muximum profit. It has been demonstrated that by intially planning the project with fewer people and accepting a longer development time, the project will be completed more cheaply. If, however, staff are misapplied. productivity and reliability both

Surprisingly perhaps, given the fact that everyone seems to believe that the Japanese do these things much better than we do, a Fujitsu representative declared in private conversation that Japanese companies tend to put too much effort into their projects - and suffer for it. There is no shortage of programmers in Japan," he declared, "but we are at least two years behind the US in software

'The million monkey Even a perfect system method won't work' needs some maintenance

years' experience will have spent half that time on maintenance - and half the cost of software lies in its maintenance." Strong words, and not the kind programmers will welcome, but this was nevertheless he view put forward by Judy Clapp of Mitre Corp, speaking at the National Computing Con-ference at Anaheim, California.

She was addressing a session on the economics of software and challenging the accepted notion that the need for software maintenace is necessarily

"An obvious example of a system where maintenance is application," she said.

beneficial and essential is one which is critical to people's lives, such as an air traffic control

This week Page Six moves across to California and reports on some of the programming and related topics that were discussed at the 1980 National Computing Conference in Anaheim.

"But maintenance necessary even in a perfectly conceived and designed system. The whole point of putting it into software was to be able to change it if necessary - and it has been shown that one third of hardware problems are solved by changing the software. It's. e cheapest way.

"For example, a modification was needed in the F-111 fighterbomber fleet. On some aircraft the application had been implemented in hardware and on others in software. To do the same modification cost \$8 million and took 78 months in the hardware version, while the cost of replacing people who software change cost \$20,000, and took only a few months to

"Users' needs change and develop, and even a perfect system Alto seem to have an amazingly

"If you have 100 enginem;"
leave in any one year, and the \$10,000 each to replace."

Tatar's solution to the plan was the installation do velopment machines. "Werusing Digital Equipment E. 11/70s with the Unix operations by them. We have 15 of them. design support tools and a pilers and assemblers.

"By going with the 11/4. Unix we had something tot. lyse the operation. At present have one terminal per two: gineers, but we would like have one to one.

"If you have really good up a major project cost \$15,000 per software person in startup velopment facilities, our i perience over one year but you get a much better him with job candidates West reducing our people to pay communication and puling more electronic mail, and we developing standard was doing this. That way wer slowly becoming less depart on specific individuals."

Female attitudes that bar the advancement of fellow women

WOMEN should "forget past prejudices and face real time lieves that he achieved his position on merit, a woman believes problems in the world," was the message from Ida Mason of LeHigh University when she addressed a session on women in computing at the NCC. These "real problems" in-

cluded women's promotion where they involved relocation. Would a husband be prepared to move with his wife if he earned more than she did, if the move meant a drop in the joint salary? Another of the "real problems" sounds downright trivial, but is one which American women obviously take seriously. Responsible positions involve travel, but it is more dangerous

for a woman to travel late in a large city, while travel with male colleagues often led to objections from the men's wives. The consensus seemed to be that other women, and female attitudes in general, were the biggest bars to the advancement

Puzzler

she got hers by luck, commented Ida Mason.

needs to change with them; it's

healthy for systems to require

maintenance and the time to

plan for it is early in the deve-

lopment phase. During this

phase the software engineer is in

control; once it is in mainten-

Earlier in the discussion, Fred

Tatar of Ford Aerospace had

painted a grim picture of the

soaring costs of software deve-

lopment, suggesting that setting

costs and \$20,000 per person in

"I'm sure that we are not the

only people experiencing this,

but company loyalties in Palo

ance, the user has control."

This sort of problem was rampant, it seemed. "A woman faced with job candidates will tend to choose the man rather than the woman, in the same way as users tend to choose IBM, be-cause it's safe," continued Ida Mason. "There is also the Queen Bee syndrome: I worked long and hard to get here; why should

she have it any easier?" Nevertheless, things are much better for women in the DP industry than in the employment market as a whole. "Throughout the US economy, women's salarles are only 60% of men's, but in DP the figure is 86%," claimed Ida Mason.

In spite of this assertion, the "real problems" of women seeking advancement in industry seem to be acute, which of women. "Where a man be- protests coming from the floor was obvious from the feminist

throughout the discussion. What came strongly over that the US employment dies is very different from that it UK and that, for example, by imaginative solutions to

problems involved in a

employment of women - ***
as F International's home F

gramming network — at the practised in the US.

Page Six will be please

hear the views of women by

UK who agree or disagree!

Access Data:

distributors for

SYSTEM

in the US.

large companies leaving to set up their own enterprises. Fyl-stra's own company, paralleled by Petsoft in the UK, grew out of However, such enterprises are

dealers in the US, according to

Dan Fylstra, president of Perso-nal Software, one of the leading

microcomputer software com-

has led to the tabling of a Com-

puter Software Copyright Bill in Congress which, with the help of

the Microcomputer Industry

Fylstra, who is on the

association's software copyright

committee advising Congress,

has his own ideas. "There are a variety of software-dependent

schemes, but the best bet is to

take technical measures to pre-

He also pointed to the difficulties particularly relevant in

threatened by the unclear law of copyright and a lack of under-

the world of programming per-sonal computers of a contract of efficacy of the proposed law, Prof Bryan Niblett of University oyment giving employers College Swansea is aware of rights and titles to the work of concern among US users that the new Bill weakens rather This has led to the "stars" of than strengthens the law, parti-

cularly in giving the lawful user certain rights which reduce those of the copyright owner. Niblett is advising the DoI or these circumstances and the the use of the present UK number of small micro-based copyright law with regard to enterprises is rapidly increasing. computer applications in a report which will be available in

Copyright specialist Alistair

standing of the technology in- Kelman also expressed dissatisvolved by the makers and inter- faction with the US attempt to preters of law. The Data Cash answer the copyright problem.

CP/M ops system

SOFTWARE FILE

ALTHOUGH ICL has expressed an interest in investing in the systems house SPL, MD Peter Adams has confirmed that the preliminary discussions had no positive outcome. "We have approaches from people all the time but this one got nowhere."

Tobotics, British Robotic Systems has won its first contract (CW, March 8). "If we controlled by micros can meet the needs of industry then we're in business," said Adams. "The main difficulty is to persuade some sectors of industry that robotic systems

he said. Industry that robotic systems are Meanwhile SPL's venture into worth investing in."

work dealing with copyright causes problems to software which neither Sinclair nor Cary

Trade Association should extend protection to software.

essential step in the utilisation of the machine and that it is used

Copyright Bill is

UK copyright law.

wished to become a test case for

The Computer Software Copyright Bill proposes: "it is

not an infringement for the

owner of a computer program to make or authorise the making of

another copy or adaptation of

that program provided: 1, that

such a new copy is created as an

in no other manner and 2. that

such a new copy or adaptation is for archival purposes only and that all archival copies are de-

stroyed in the event that con-

tinued possession of the com-

puter program should cease to be rightful." Fylstra is not alone in having

doubts about the power and

ICL and SPL in talks

SEVERAL new products are on and MP/M is a PL/I-80 and the market for the widely used library which provides an Ansi small machine operating system, CP/M, which supports a
broad array of languages and science, research and education
works on inicro-based systems
using Intel 8080, 8085 and Zilog

At the same time info 2000 has

Version 2.2 of the system is said by authors Digital Research fornia to be more efficient and reliable as well as truly unithe with CP/M, known as MF/
Mf. which provides multipropagamming facilities at each
criminal as well as real time.
CP/M. CP/M. CP/M.
CP/M. Was named on the
Detapro Honour Roll in 1979 and
Research for the use with CP/M.
CP/M. World.

introduced performance improvement software, called Turbocharger, which is said to accomplish diskette input? output three to five times faster versal. The company has also than normal in CP/m applications, and to increase data multi-terminal system compatible with CP/M, known as MP/ BSH Electronics of Marichester.

Virtual machine option

A TIME sharing operating system for Digital Equipment PDP.

8 kit Known as Etos, is fo be marketed in the UK by DEC specialists Computer Applications Ltd of Chorley, Lancs.

Lising firmware, Etos is said to machine, transforming single machine, transforming single whom a system running under US to enable multiple users to develop programs in Basic or Fortran.

Pack enables DEC machines to talk to IBM

A COMMUNICATIONS software package The host interface package provides a (the hardware connecting PDP-11 to IBM directly via an IBM channel. This means that 370X communications controller. an IBM mainframe using SNA can support a The two main modules of XN11 are the work. At Harwell the TSI supports Hans, a communications network conforming to

has been developed jointly by Scicon Con-sultancy International and AERE Harwell. architecture on DEC hardware and the IBM mainframe via VTAM. The channel inter-The package, XN11 is one of a family of host machine by emulating a sub-area of an SNA face is written in Assembler and the SNA interfaces. It enables IBM and Digital network such as would be created by a set of emulation is in Coral 66. Equipment computers to communicate terminal clusters connected through an IBM

network interface between SNA and the private packet switched network using Dec-DEC network, and the driver for the DX11, net line control protocols, but alternative

by Claire Gooding

Another module, the transport station interface, provides access to any given net-

TSIs could be used to support other styles of network such a X25 or Decnet.

XN11 complements rather than competes with DEC's own protocol emulator SNA-PE. hich uses serial communicachannel parallel method. The different scope of the two pro ducts is reflected in their resand replaces incorrect words. giving a list of alterations and comprehensive XNII costs It works at about 60 words per £25,000 for software and a minute and plans for the product

further £13,000 for hardware. Not that the price bothers the buyers for whom XN11 is a significant facility, typically multinational industrial and banking organisations. Scicon has aiready installed some XNI is and has orders from over a dozen organisations.

Spelling correction program for micros

ences at the end.

include an "instant editor" for

common typing errors such as double letters or reversed pairs

and hitting neighbouring keys.

Corrector runs on a Z-80 mlcro-

computer, requires 150K on disc

and 12K of core and costs under

tabled in Congress A SPEILLING correction program for micros is available from Southdata, a firm set up to THE lack of a clear legal frame- It was echoed by the MicroAce a book an illegal act. It does not address itself to the major pro-blem of information technology. market a variety of packages by "cottage industry" program-. that is the interaction of copyright works and computer

The program, Corrector, cor-

programs.
"The definition of programs rects some spelling mistakes automatically and draws atten-tion to the ones it can recognise implies a single solution to the problem, which is not in line but not rectify. It checks text with current British thinking on against a 25,000 word list supplied by Oxford University Press

FLOPPY DISKS?

case in the US threw this problem into relief (CW, March 20). More efficient version of an all of making the reading of the computing equivalent equival

And makes it better in fact, Twinlook Roppy disk accommodation provides the most comprehensive, efficient and (dare we say it)
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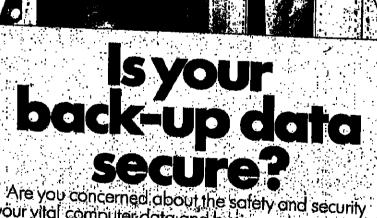
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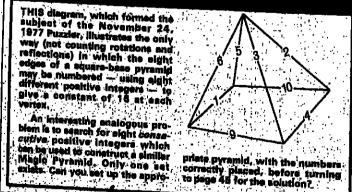


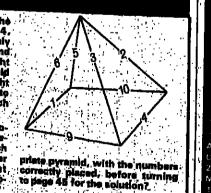
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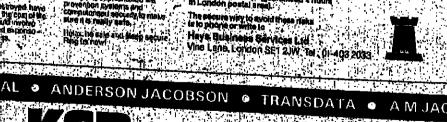
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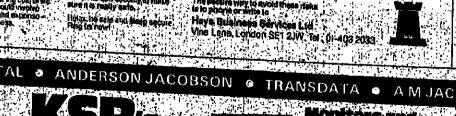




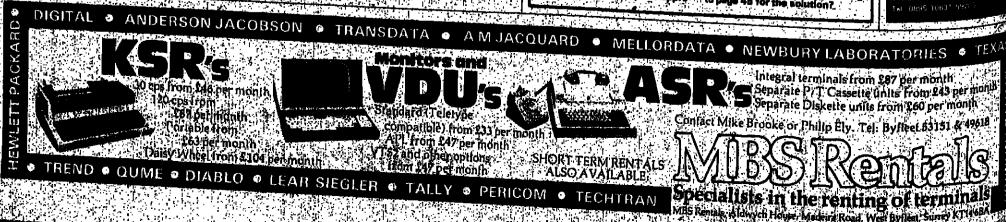
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OP SPOT

A troubleshooter who is on call day and night

the operations fraternity, Paul Butterworth must be able to work with speed and efficiency

any time of day or night.
As the head of technical administration at W. H. Smith's in Swindon he has many duties, one of which is being on call 24 nours a day, seven days a week.

It's a challenge which the confident Butterworth meets with great relish, as was obvious when I spoke to him the other

"I'm fully prepared to take calls 24 hours a day, seven days a week in the event of a machine crash. The operators have got an escalation list — if they can't get hold of me they'll try my hard-

"I might get called out in two or three months or several times in a week — it all depends."

On such occasions Paul will be on site within half an hour or so with the intention of getting the ICL 2976 up and running to continue the user service as quickly

The first step is to work out whether the failure is due to hardware or software. If it's a software or applications problem he'll call for support from the relevant area.

in the event of hardware failures, the site's two resident engineers have an hour to tackle the problem. If they have no success they will contact their area manager for specialist

hardware support.
"If it's a software matter, the support person and myself will pore over it until it's resolved. Hardware problems — well, the residents have an hour to get things sorted out. After that [?]] want them to get hold of support

Often It's a case of weighing up whether to hand the machine over to the engineers or to continue running with a reconfi-

gured or degraded system. "The point is that you're pro-viding a service to the user. You've got to find the way of getting as much of the scheduled workload done as possible."

Day shift at the installation also provides Paul and his three hardware specialists and technical assistant with many kinds of stimulating and challenging

"The phone might go, or someone might come through the door and present us with something that's got to be sorted out. My lads will follow the problem through and ensure that it

"In the tracing of a problem they'll go through the hardware loop to see if the fault lies there. If it's not that, they might well have to go and discuss matters with software support or the

They come into contact with all sorts of people in the course of their problem solving. They get an excellent practical training, they really do."

The computer room environment, not just at Swindon but at all W. H. Smith's sites, is another area of responsibility for Butter-worth and his hardware special-

That function includes the evaluation and purchase of air-conditioned equipment, power supplies and anything else in-volved in the building of an en-vironment in which a computer is to be installed.

"One of our lads is an adept draughtsman, which is really

handy because we provide factor in my decision to enter drawings for the contractors to

"Then we call in all the suppliers and say 'This is what we want from an operations view-point. What can you do for us?"

The technical administration section also orders all the "bits and bobs" — discs, floppy discs, stationery, printer ribbons and so on — needed for the day-to-day running of a system.

"We have to ensure that we've got enough both for our own use here at Swindon and that of our other sites, should they have problems with their reval supproblems with their usual sup-

view of how new packages they propose will fit in and affect the existing system.

"They might say 'We like the look of this software package' and we'll look at it and give the practical operations viewpoint." Butterworth entered the perations field with Barclays Bank in Tottenham Court Road

some ten years ago. Prior to that he was with the bank first as a clerk, in charge of a sub-branch in South Wales, and then as a member of a management accounts team. "The shift allowance was a big

operations — it was quite a large sum of money at the time. "I got a first-class training at Barclays Bank, But I wasn't int-

erested in taking the banking examinations and there seemed to be little chance of me progressing any further.'

Butterworth had a long stint as a shift leader and shift super-visor with Burma Castrol before

Lads doing well

of Technology.
It comes from David Fletcher, head of the DP division at the who told me that the students still have eight weeks of the count.

complete.

According to Fietcher, they are currently working at site it industry. And if they do all right both will get their Bec/Tec lines in Complete their Bec/Tec lines.

John Thompson is working at Moseley Borough Council, win they run an ICL 2950 from nine in the morning till five in the county they run an ICL 2950 from nine in the morning till five in the county they run an ICL 2950 from nine in the morning till five in the county they run an ICL 2950 from nine in the morning till five in the county printers. But they do let me run the main console when we're not busy, it's going well and I'm enjoying it."

John Gregor is currently operating an ICL 2904 at British haited Callender Cables in Leigh, Lancashire. Obviously making very get console work as well as mounting discs and tapes.

"I also wrote a macro which is now on the library as a part of a payroli program. It worked first time — I was pleased with that."

Automating the tape library can be cheaper than hiring a librarian As if that's not enough, Paul's section also liaises with software AT many installations, little Operations Management* ser-

attention is paid to the magnetic tape library until it has grown to the point where staff have difficulty in locating files which are needed for processing.

When that happens the manager might well employ a librarian on a part- or full-time basis. He will be responsible for checking media in and out of the

An alternative method is to install an automated tape library, some of the advantages of which are outlined in a paper called The Automated Tape

currently available in the UK.

For further information con-

tact Tom Stewart at Butler Cox and Partners, 26 Holborn

Viadict, London ED1A, 2BP. Tel:

A part of the Data Centre Final statement on eye tests due to the urgency of the matter, have been selected from those

01-583 9381.

THE VET Advisory Group has followed its discussion document on eye tests for VDU operators (CW, December 7, 1978) with a final statement on

The booklet includes a list of recommended eye tests which, vice, it says that the manager should commit himself to an automated tape library before the library grows too large and caused problems for the opera-

can handle as many as 4,000 tapes, but points out that human error is inevitable and that backup must be available when the librarian goes on holiday or sick leave,

According to the author, the monthly rental of an automated tape library package will prob-ably be less than a librarian's salary over that period.

Managers are advised to select their automated library with great care. It's best to talk to their managers who have already installed one.

Once a package has been selected, the manager should encourage his operations staff to become involved in its planning

The author concedes that

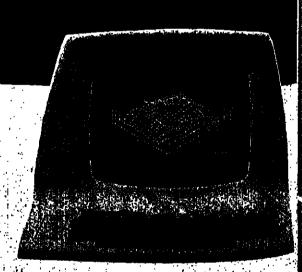
there will be initial problem but goes on to say that there be of a psychological rather a technical nature.

"The operators may feet a comfortable about process changes. Data conf employees may complain the difficulty of re-running the (they will no longer by a simply to change the con-cards, go back to the pro-file, and re-run).

his management staff and but uncomfortable about 1 removal of external tape and even more uncomfø about processing product tapes with file protect repr

He goes on to say that so fears are unfounded, but site. the manager to give he time to get used to be automated library.

*Data Center Dialog, vol 4 # 1 Auerbach Publishers Inc. bit tributed in the UK by Compare for Management, 155 Great Ports



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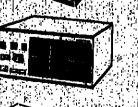
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PEOPLE and EVENTS

Ichbiah leaves CII-HB to develop Ada

ADA designer Jean Ichhlah is leaving CII-Honeywell Bull, where he was responsible for the software division of the research centre, to set up a consultancy which will special-ise in the development and mar-keting of software with a set or reting of software using advanced

The name of the company will be Apsys, a kind of dual mnemonic which can stand either for Ada Programming Systems or Applications et Systèmes. It will start by deve-loping and promoting the Ada

A special relationship has been established with Cli-HB, which feels the need for maintaining the European lead in the develope Ado, and has taken a 15% holding in Apsys.

Girl technician prize

Till: engineering industry needs to attract more bright trainees, es-pecially girls, many of whom do not consider engineering as a possible career. The Girl Technician Engineer of the Year award was seen of the Year award was set up to draw altention to electrical and electronic

chemion to electrical and electronic chemical as a career for women. The winner of the £250 prize is an mulstanding glid technician engineer who has followed the appropriate training and has proved herself by holding a responsible job. It is hoped that by her example she will encou-

rage more girls to make a career in electrical and electronic en-

The last date for nominations this year is October 1, 1980. Details and nomination forms can be obtained from Mrs Elicen Sheldon, IEETE, 2 Savoy Hill, London, WC2R 0BS, tel: 01-836 3357,

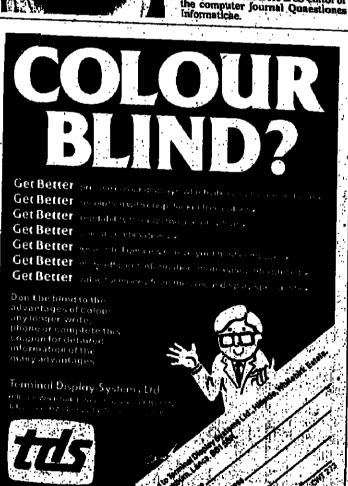
The award is sponsored by the Caroline Hashtt Memorial Trust and the Institution of Electrical and Electronics Technician Engineers.

University post

PROFESSOR Morgan Howard Williams (left) has been appointed to the Chair of Computer Science at Heriot-Watt University, Edinburgh.

Williams was born in South Africa in 1944 and gained BScs in Maths and Physics from Rhodes University, South Africa. From 1967 to 1969 he was physicist with an Antarotic expedition, and in 1971 was awarded a PhD in Physics for his thesis on Diurnal and Seasonat Variations in the F2 Region of the Antarctic ionosphere.

Rhodes University, and in 1979 be-came head of the Department of Computer Science. He is co-editor of the computer Journal Quaestiones Informaticae.





Attired in a company T-shirt, Baric MD Kier Hopkins takes instruction in driving a March Formula Atlantic racing car from its owner, Baric salesman Roger Orges. Roger is sponsored by Baric, and the company is staging a series of customer hospitality days at circuits around the country where he will be racing. Last year, he finished second in the BRSCC National Formula Libre Championship.

Mike Roe, until recently government sales manager with SIA, has joined CSC London as general sales manager and director designate. Mike Tuohy, from ADP Computer Services, Walter Rotherham, from the US, and David Robinson from Rank Xerox have injust CSC as Gerald Perutz has become an executive vice-president of Bell & Howell in the US, with responsibility flowell in the US, with responsibility for all the company's operations outside the US, as well as some within it. Until 1977 he was general manager of Bell & Howell European region; he left to become a corporate officer at the company's Chicago HQ. He is still chairman of Bell & Howell Ltd. Rank Xerox have joined CSC as

Mike Evans has become sales support manager for communica-tions products with Arbat. His most recent job was as senior systems David Steadman has become s

vice-president of Raytheon in the US, heading the intelligent terminals operation in Massachusetts. He returns to Raytheon after a year and a half as chief executive of EMI's medical electronics operation.

David Warren, previously national sales manager with CPT, has joined Supertyper as sales director. He replaces Patricia Hokke, who becomes marketing services director. Martin Waine has been appointed

sales manager for data and text communications at Pye Business Brian Perry has been appointed nal research manager at MS Computing.

Four men have been appointed at LogAbax. Gerry Cook is to be UK products marketing manager. He was previously systems marketing manager and before joining the company was with Honeywell and Adler Business Systems

Previously with Datasaab, Bryan Sealor, becomes sales manager for Western and Northern regions of the UK. Ron Goodman has been promoted to UK dealer manager and Mark Powell has been promoted from systems analyst to UK software manager.

Conservative MP John Butcher has joined the beard of ACT Computers of Birmingham. Butcher is 34 and entered Parliament at the last election, as MP for Coventry South-West. He is vice-chairman of the All-Party, information Technology Committee and tee and a secretary the All-Party Committee for the Legalization of CB Radio.

DIARY

Debaie, Pascal is not a practical Micad 80, CAD conference programming language/AGM. Micado Paris.
ACM, UK chapter, BCS, 13 Mansfield Street, London W1, 6,30.

New technologies for information

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New technologies for information retrieval BCS Information Retrieval Group, London, NOVEMBER 6.7

ference. BCS/IIS, Manchest NOVEMBER 14-16 More than Just techniques, conference. British Production and Inventory Control Society. Blackpool.

DECEMBER 10 computers in museums, BCS in-formation Retrieval Group, London, Bob Brown has been appointed as senior systems consultant with Ar-bat (UK). Among his responsibilities

will be the development of Arbat's banking and communications sys-terms. Brown joins Arbat from Sci-Formerly a Systems Designer in the Application Development Divi-sion, June Bush becomes senior sys-tems consultant with particular responsibility for the Intelex range of measage switch products.

Mike Hudson has been appointed microprocessor systems manager at National Semiconductor's Bedford sales office, Hudson joined the company from Texas Instruments, where he was a consumer field sales engineer.

Peter Lea has been appointed UK national service manager of A. B. Dick, the GEC subsidiary. Lea, who has held a number of senior marketing posts at ICL, will be responsable for all operational technical and ible for all operational, technical and commercial matters in connection

A second A. B. Dick appointment is that of Eric Springate as director of marketing. He joins the company from Sperry Univac where he was international marketing manager in international marketing manager in the Business Systems Marketing

SOCCER

Summer Computer League

THE Summer Computer League is now well under way and here is the first batch of results for the season:

Division 2 ICL 2, Datasolva W.E. O Datesolve W.E. 5, Compton Raiders O Compten Raiders 1, NCR 'A' 3 ompten Raiders O. Forest 8

Division 3 Ventek O. Brilish Aerospace 9 SBS 1, Jadpu 'B' 0 Gill & Duffus 7, Ventek 4 British Aerospace 5, SBS 1 Gill & Duffus 2, British Aerospace 2

Kingston 2, Logica 4 Logica 2, UCSL 3

Cup (First Round) West London Xerox O, Forest 8
Compten Raiders O, Computer
Weskly 3
British Aerospace 3, Hoskyris 1

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two extra floppy drives or a fixed hard fish either 13.7 or 274 megabytes of date

with 64K of main memory and twinted

FERRANTI'S computer are partment has moved from his nell address to new pass. Wokingham, also in Behard department was set up to address. The micro, and wis more its facilities to include by M700 mini. The andress of the depute.
The Courtyard, 20 Delimets.
Wokingham, Berks, RGII 8:
0734 780079.

Trading informed ICL that the

agreement should not be taken

by ICL as an irrevocable accept-

nce of the principle of the

licence fee or levy that ICL

charges customers who install

compatible hardware from other

that the agreement did not pre-clude the possible future use of

the Office's powers under the

new Competition Act. The Act

should give the OFT much wider

powers and was the main factor

A CONVOLUTED series of

financial transactions which will

give Compagnie des Machines Bull 20% of Olivetti to put beside

its 53% of CII-Honeywell Buil is

planned by the French industrial

conglomerate St-Gobain-Pont-

a-Mousson. At the same time St Gobain will get a controlling

51% stake in Compagnie des

Machines Bull, giving it effective control of CII-HB.

The French government's involvement in Machines Buil fails

from 20% to 10%, various banks

have another 10%, and small

hareholders see their stake

liminish from 60% to 29%. Under

sal without mobilising a sub-stantial number of the small

There is no question of CII-HB

and Olivetti actually merging in the foreseeable future, since St

Gobain's Roger Fauroux and

Olivetti's De Benedetti have

signed an agreement excluding a

The mechanics of the

nanagers and professionals by

ringing in new techniques.

That is the principal conclusion of a multi-client study on the use of electronic office equipment

arrangement are that Cadamas, a holding company owned 76% the other 47% of CII-Honeywell Bull.

Raising the productivity

of managerial staff

merger for five years.

Moreover, the OFT told ICL

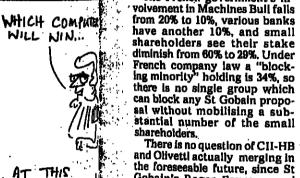
Midlands branch

SYSTEMS house Distributed puter Services has extended in Midlands branch, managed in Mitchell.

The new address is like. House, Bristol Street, Binks. Tel: 021-622 6448. Richard Hunt, from Tax

where he was a sales eight joined Peripheral Hardward trail area executive. John Date: become a sales execulture Peripheral. He joined the confrom the systems and insing tion division of Marcoal Son

Liveware Fil





-THE ONE THAT SEEDS THE

y professionals, carried out by ew York consultants Booz OR THE MET Harvey Poppel of Booz Allen OFFICE ONE has long been a proponent of the should seek to raise the produc-tivity of high-paid executives and professionals rather than that of lower-paid clerical staff.

firms that were interviewed felt that on average they spent 25% 1985 in organisations prepared of their time in less productive to commit "sizable resources" to activities which did not make good use of their time, such as cierical tasks, finding and screening information, and scheduling and organising work.

Electronic support tools should save between 10% and 30% of the time of "knowledge workers' by 1985, the Booz Allen study found, with a 9% 18 to 24 months for those ready to move ahead aggressively. The quality of work should also be improved.

LOGICA has announced the promised Cobol interface for its compact and portable relational database system. Rapport, which was launched last year with only a Fortran interface. Despite the fact that most of the 40 or so existing Rapport users are technically offented. Logica says that about 20 of them have expressed a strong interest in a Cobol interface for the system. Customers with the keenist interest, acqording to Logica; are users of 32 bit minicomputers like the Digital Equipment VAX-11/780 who ompact and portable relational

cial database.

Logica developed Rapport originally in co-operation with the
Royal Armament Research and
Development Establishment at
Fort Halstead near Sevenoaks,
Kent, and has strengthened its
position in the military sector
with the introduction of a Goral
interface

interface.
Other enhancements to Rapport, include multi-level record protection where protection can be applied to selected fields within

for ICL licence fee

No government go-ahead

tion in the maximum levy on

locally attached peripherals

from 20% to 16%, and the intro-

duction of uniform pricing for all EDS 60 controllers on 1900 sys-

tems. ICL used to charge a very high price for the first EDS 60

controller on a 1900 system and

very little for additional con-

trollers, thus pricing any plug-

the latter's Olivetti shares, will

be taken over by Compagnie des

of new shares. The other 24% of

Cadamas is split between a

group of banks, which have 20%, and Sofimatique which has 4%.

St Gobain has 70% of Sofimati-

que, the other 30% being held by Société Générale.

Cadamas is the holding com-

pany for 10% of Compagnie Financière de Suez, and, believe

it or not, 5% of St Gobain itself.

These holdings will of course

also pass to Compagnie des

Machines Bull. Thus the rear-

rangement is to be effected without any money changing

St Gobain hopes that the new

arrangement will lead to closer

co-operation between CII-HB

and Olivetti, particularly in the

office automation field. Apart from some OEM business, CII-

Honeywell Bull does not operate

in Italy, its products being sold

there by Honeywell Italia, The

latter is a 100% subsidiary of

As well as the Olivetti shares,

which persuaded it to start talk- compatible disc system supplier

gain control of CII-HB

St Gobain plans to

accept only limited changes to (CW, December 13, 1979). The ICL's commercial practices Office had been lobbled for (CW, June 26) the Office of Fair several years by companies affected by ICL's practices, including its foreign attachments come too late. Teknos used to The changes in ICL's attachoffer a plug-compatible EDS 60 ments policies include a reduc-

to the EEC about ICL would lead on could in theory fine ICL up to 10% of its previous ring ICL to cease its violation of the Treaty if such violation were

complaints to the EEC and one of its customers, the Norwich Union Insurance Group, was the charge". Ken Annan of Teknos first individual user to publicly commented, "What is a fair and challenge the attachment reasonable charge?" ICL said policies (CW, February 24, 1977). that such a charge was one that See Computerview, page 2.

Systems, said that the EDS 60 ment between ICL and the OFT business was now effectively will not benefit us at all. ICL has dead, so that this change had won. It has got away very

nicely."
Referring to one of the other points in the OFT agreement, Annan said that Teknos was Evans pointed out that ICL's still hoping that its complaints undertaking to provide store extension units as separate units to ICL being forced to compensate Teknos for its loss of business. Under articles 85 and 86 of was meaningless, because no the Treaty of Rome, the EEC units were available. Asked to comment on this, ICL said that it expected more extension units year's turnover as well as orde- to become available as more 1900s came back from users.

One other undertaking made by ICL was that it was prepared to carry out standard modifications to an ICL system to accommodate a non-ICL device for "a fair and reasonable

aware of the work of the Manpower Services Commission and the Department of Employment, a Prestel set was installed for one week in the House of Commons Upper Waiting Hall by Radio Rentals Contracts. The Central Office of Information manned the set to demonstrate the range of

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Telephone: 08956 74101. raied no. 1 in Datapro User surveys in 1978 and 1979.







by Eileen Staine

Double challenge to Sinclair portable

A CHALLENGE to Clive Sinctan's portable computer system, the ZX80, has come from Newbury Laboratories in the UK and from Sharp In Japan. Although the newcomers differ with respect to size, power and capability, both can be battery operated and both offer battery backed RAM.

Newbury Labs' NewBrain (pictured right) fits into a brief-case while Sharp's PC1211 is a pucket size hand held device. Due for UK taunch in July, the PC 1211 will cost £110 with an optional cassette tape recorder at £20.

The PC1211 has a full alphanumeric keyboard with a reservable 18-function key system, and a 24 character dot matrix display. It is capable of standard Basic programming utilising 1,424 bytes of NOV.

RAM, and has 208 bytes of data memory. The PC1210 has only 400 bytes of program memory

On the surface it seems that both devices have a memory limitation as most software packages supplied in Basic for personal computers require at least 7K-bytes of RAM.

The problem can be overcome by a system of loading a small portion of the program at any one time from the cassette and working through the program in sections.

Another problem is the liquid crystal display which can only hold one line of data 24 characters long. However, the company is in the process of developing a liquid crystal strip that can display four lines of 80 characters, rolling left to right to show 40 at a time.

In the UK, the PC1211 is a direct competitor, price-wise, to the Sinclair ZX80 (CW, February 7), but this does not have battery backed RAM or battery operation. Measuring 9 x 7 x 2 inches, it is twice the size of the PC1211, but its size and price do

The ZX80 is far more powerful than the PC1211. It is Z80-based and has the equivalent of 4K-bytes of RAM, expandable to 16K-bytes.

Both companies appear to be aiming at the user with little or no computer knowledge, as they have provided a push-button facility for simplifying programming.

ming.
One important advantage Sinclair has over Sharp is on the software scene. ACT Petsoft is to supply software packages for the ZX80 from August.



Newbury Labs' kit is based on dual processor

NEWBURY Laboratories' challenger to Sinclair is the New-Brain range which comprises three units and the first is expected to be launched in September. Called the M series, it costs about £60 more than Sinclair's ZX80 which Clive Sinclair has said will cost £99.95 by mail order.

The M series operates on mains only and requires the use of an external video terminal. However, it is said to be more powerful than the ZX80 and has a much larger capacity.

The other two units in the range, the MB series and the MBS series, differ slightly. The MB costs £195, operates from mains or battery and has its own display, while the MBS is the same as the MB but costs £245 and has a lower power consumption. Both have battery-backed PAM

The power of the NewBrain range stems from its dual processor CPU; a Z80 does the processing while a National Semiconductor NMOS microcontroller, the COP420, controls display, keyboard and the peripheral drive interfaces. Standard memory capacity for the three devices is a choice of 2 to 4K of static or 16K of dynamic RAM.

Capacity can be increased extensively in each unit by the use of an expansion box, which comprises two PCBs. The box can contain most combinations of systems ROM, applications ROM and user RAM with limits of 3 mbytes, 4 mbytes and 4 mbytes, respectively.

Newbury Laboratories claims the NewBrain is twice as fast as Commodore's Pet. The reason given for this is that the software includes compiled Basic as opposed to the interpreted Basic used in other systems, although the speed is only noticeable when running large programs

when running large programs.

Eight I/O ports include two for analogue interfacing, two for a dual audio cassette interface, a V24 interface for printers and VDUs, a composite video output, an ordinary television interface and a bus-connector for add-on modules.

Texas additions

ADDITIONS to Texas Instruments TM990 16-bit microcomputer family are to be made in miniature form. The TM990/E series will be available on 100 x 160mm boards

New Chair created

A £250,000 Chair in microprocessor applications in industry is to be set up at Manchester University backed by Barclays Bank.

100 has a touch senald board.

Speed 68

Mos process rather the many senals and the senals and t

3 modules expected for Christmas

THREE modules are expected time for Christmas from Karbury Labs. One is an addensupply a further set of the parallel ports and another enable users to generate the data characters while the this a disc drive module what likely to be introduced with CPM compatible disc operate system.

On the software side Next. is developing a small number packages in the next six most but hopes a software house eventually take over.

ACT Petsoft is curned reviewing the situation assauming to offer software for six best selling systems that have been announced up to the six best selling systems that we have been announced up to the six best selling systems that we have been announced up to the six best selling systems that we have been announced up to the six best selling systems that we have been announced up to the six best selling systems that we have been announced up to the six best selling systems that we have a six best selling system that we have a six best selling systems that we have a six best selling systems that we have a six best selling system that we have a six best selling systems that we have a six best selling system that we have a six best selling systems that we hav

At the moment system in ware comprises a full single editor, a line editor, a lacompiler and an operating tem. High speed floating in arithmetic (multiply takes than 2ms) accurate to significant figures is indication with trigonometric inverse trig functions.

In development now thoped to be ready by Christare assembler, Cobol and its modules and utility padawritten in Basic and assembler.

Initially Newbury will be tributing and marketing from the base in Odiham, Hants to but a few retail outless are consideration as alternative tribution sources. The cost hopes to supply 1,00 will during September and 3,00% month by Christmas.

Small version for US marks

A SMALLER version of Surportable computer system being planned for the US direct competition to the parammable calculator maters.

However, this will only by pen when a printer attached is available and that is not pected until the end of targe. The US version is expected the size of a pocket element typewriter.

Games firm goes person

home computer systems will be distributed in the little lingersoil Electronics.

Both the 400 and 80 signs systems are based on Marie nology's 6502 microprotes have full keyboards with ability and are programmed Atari Basic. Differences in memory capacity and systems are capabilities.

The 800 system which about £750 has 8K of Rill pandable up to 48K and a ROM expandable up to 5 system 400 which under £400 has the same with no expansion capital in appearance (he) silightly and the 800 versus an ordinary keyboard whith 400 has a touch sensitive board.

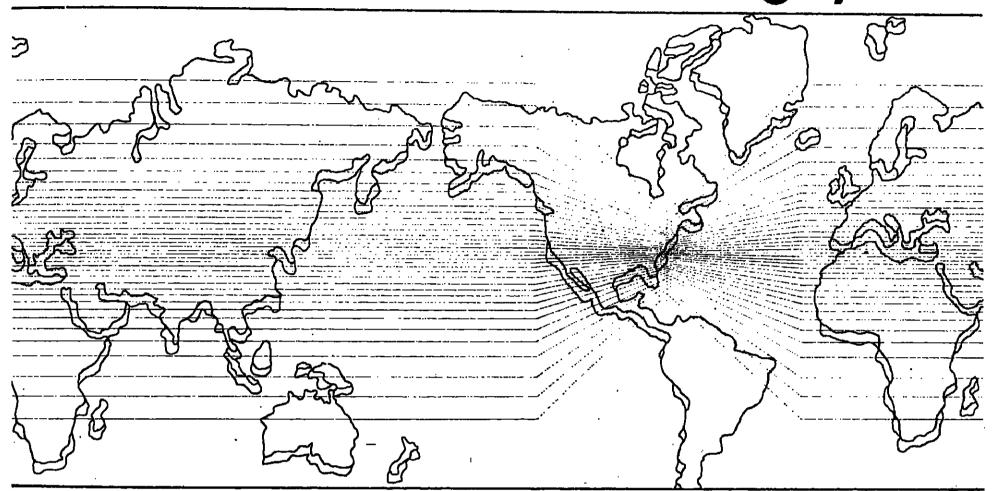
Low power high speed 68

LOW power high speed version of Motorois's \$802 \$-56 CPU is eing minde by Mitel of Canada and will be distributed in the UK Y Promis Electronia available by expectable to be available by restance and

CHIOS process rather if the process of the process

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ADecade of Detaski

Fujitsu's OEM deal French say Swedish government opens Euro door

with Siemens on large main-frames is proving to be the IBM programs and has installed a 7.870. Japanese company's most successful onslaught on the European market.

in its first year of marketing. Siemen's has been much more successful than Amdahi in per-suading large commercial IBM users to buy plug-compatible; it now has four machines installled, five on order and firm letters for four more.

Siemens has overcome an obstacle which Amdahl does not have to face: persunding MVS users to run their programs under the compatible but different BS3000, the Siemens name for Fujitsu's OSIV/F4 operating system. Stemens claims the BS3000 is at least 10% more efficient than MVS.

The first Fujitsu machines in-stalled outside West Germany has gone to Computer Centre Limbourg, CCL, in Holland. A Bovernment computer centre and already a Siemens user, the

Apart from the installations at the Hahn Meitner Institute in Berlin and Datev in Nuremberg (CW, September 13, 1979), the other machine already installed is a 7.880 at an unnamed banking data processing centre in Southern Germany where, following proving trials, it will

replace one of two IBM 3033s. There are 7.880s on order at the Max Planck Institute in Munich to replace an IBM 360/ 91, at mail order and department store chain Quelle, where it will replace a 370/188MP and run alongside a 3033, and at the Geovor centre for the West Ger-

Geovor wants the machine for a new, classified application and chose it in preference to a CDC Cyber 175 and a 3033. The new 7.865 model, which is priced 20% below the 3031 but claimed to offer 30% more power, is on order for Munich farm equip-

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The 7.880 is Fujitsu's M-200. rated at 6.2 mips against 6.8 mips for a dual processor 3033. The 7.870 is Fujitsu's M-180 and the 7.865 is based on the M-180AD.

The one big difference between the Japanese and the IBM software is the database management system. Against IBM's IMS, Slemens offers Fujitsu's advanced information manager, Aim which is full network Codasyl database. So far only the Hahn Meitner Institute has adopted it.

Siemens offers mainly Fujitsu peripherals with the 7.800 systems, including a new threecolour display called the 3887 as a partial answer to IBM's fourcolour <u>3</u>279.

The Fujitsu 2806 communications controller, which runs IBM's Network Control Program for SNA networks and is claimed to be 21/2 times as fast and offer 11/4 times throughput of

EEC rules

SPEAKING at the annual meeting of the French Club de la Péri-Informatique, Jean-Claude Pelissolo of the French industry ministry said his govern-ment would adhere strictly to the "free competition" direc-tive on public sector

purchasing.
The club, which consists of 30 peripherals, small systems and services companies, had a splendid year in 1979, with aggregate profit up 47% at FF 480 million on turnover up 30.2% at FF 3,007 million.
Of this, 22.6% went for export, an increase of 26.2%.

port, an increase of 26.2%.

they will obey agreement ensures Datasaab's future

of feeling within Univacibilithis decision was a mistake.

In the last financial year.
Datasaab made an overall load
SKr 208 million (£21 million)
turnover Kr 873 million (£6)

million). For the current years

is forecasting a lower loss, about

SKr 135 million on turnover of SKr 1,111 million (£112 million

Another loss is forecast for lat.

and the company hopes to be even in 1982.

Reason for Datsaab's los

making status since its # i

formation in 1978 with the

Swedish government having

50% of the shares and Sul-

Scania the rest, is that the pro

gramme established at that the

called for substantial inves

ment in developing its lines.

Over a four-year-period

Datasaab will get a grant of Ski

430 million, but the accumulate

losses up to April this year last already absorbed SKr 511 at

Datasaab now estimates the

will overshoot the SKr#

million target by about 30% at on June 10, the Swedish Risks

(Parliament) voted the company

the money it needed to believe

its books. It has the additional

ALTHOUGH Sweden's only computer manufacturer. Datasab, is more than willing to work, but we could not reach a colaborate with European or US ngreement.
"We had talks with United earlier about their marketing our banking terminals, but they were not prepared to pay as partners, the company is not seeking a buyer and its agreement with the Swedish government ensure its future as an ough money."

Univac ended up adopting banking terminals from Bunker-Ramo, but industry sources say that there is a body of faeling within University

independent company. So says president Gunnar

"We did have talks with ICL, but they were terminated with no agreement (CW, April 17). ICL was interested in our ban-

Why university picked

customer this time is Leiden University in the Netherlands which has installed an Amdahl 470 V/7B in preference to an IBM 3033N. The V/7B will replace one of Leiden's two IBM 370/158s and will substantially increase the computing power available to departments throughout the university.

According to Rudolph Slegtenhorst, director of computing services at Leiden, the Amdahl machine was more attractive then IBMs for several important reasons including the fact that it can easily be upgraded in small steps. The V/B is the smallest of four field upgradeable models, the other three being the V/ZA the other three being the V/7A, the V/7 and the V/8.

The V/7B was preferred also because it has far fewer integrated circuits than the 3033N and for its effectiveness in a time sharing environment. At Leiden it will be supporting 70 APL ter-

Apart from the technical plus points it can offer over IBM. Amdahi also succeeded because of its more flexible attitude to customer contracts. Leiden is still waiting for official approval from the Dutch ministry of education to purchase the V/7B and to get over this problem Amdahi agreed to supply the machine to Leiden on a sixmonth lease while approval is

negotiated,
Before making its decision to install an Amdahl machine, about 125 D15 business system installed, and about 30 diff existing Amdahl customers in Europe including Ford at Cologne, BOC Datasolve in London and Leeds University which opted for an Amdahl machine last year (CW; August 2, 1979).

The V/78 was introduced by Catasah and about any market some product of the company description of the company descr

Amdahl instead of IBM

IBM has lost out to Amdahl at another university. The

security that if Saab-Scani wishes to sell its shares, it me offer them first to the Sweet industry ministry. The company's products of sist of banking terminal system and small business computer both built around versions of the same bit-slice minicompute Alfaskop VDUs and cluster systems and clinical systems is

The V/7B was introduced by Amdahi last year immediately after the 3033N launch by IBM (CW, November 8, 1979).

India shows West the

EDUCATION and training for government support one supp is just as much a need and a problem in India as anywhere else. But while Western companies are all too willing to sit back and complain that somebody else should do something about the problem. Indian companies are refreshingly willing to go out and do something about it themselves.

somebody else should do some thing about the problem, Indian companies are refreshingly willing to go out and do something about it themselves.

Tata Consultancy Services. Institute for Fundamental institute for Computer Science To be established in New Delhi, it should open its doors in about six months. Its doors in about six months. Its fill goes well, taking an initial about and building up to about 100 Courses will run for between six months and two years, and the him will be to turn buil top calibre computer scientisis.

"We hope to get some PDP and to sarly model will be to turn buil top calibre computer scientisis."

tor Plyush Singhal. That is way it always works here government is not prepared back ventures of this kind has they have been proven with

INDIAN SCENE

First commercial bureau is based on own country's kit

honour the great man, every Indian invariably calls it MG Road, and the inhabitants of

Ernalulam, the business centre

of the southern port of Cochin

Kerala's first computer

bureau Cams, Computerised

Accounting and Management

Services, is on MG Road and

Paliath Surendran is the

cost and works accountant," he

says. "I worked for a govern-

ment undertaking, Travancore

Ltd and my only contact with a

computer there was as a user.'

Needless to say it was an IBM

1401, which are ubiquitous in

"I have had it in mind to start

computer services company

for about 10 years. Cams is a

shareholders, and seven

employees at present. Our shareholders include five chart-

ered accountants and cost

accountants and I am quite con-

fident that we will be successful

and the three Datan 3 data entry systems cost £3,400 each. We

have to do about £2,800 of busi-

ness a month to break even, but

we have signed our first two

choice of computer. We were limited to microcomputers from

Hindustan Computers or ECIL,

or the DCM mini. Hindustan Computers builds a business

system around the Rockwell PPS-8 microprocessor (CW, February 7) and ECIL builds an

the TDC-316 and TDC-312

company formed by forme employees of DCM, and was in-itially backed by the Uttar Pradesh State Electronics Deve-

lopment Corp as a "join sector" company, but has since severed

its ties and is now wholly

private. ECIL, Electronics Corporation of India Ltd is a public

sector company based in

expected to get better service."

Despite the fact that Cams has:

"We did not really have much

"The Galaxy 11 cost £27,000,

private company with 35

"My background is that of a

are no exception.

managing director.

indian to this day.

bureau in India's southernmost state, Kerala, opened its doors for business in February.

Kerala is one of the poorest and most populous states in In-dia, and the fact that businessmen believe that they can make a commercial success of a computer services operation there underlines the transformation which is taking place in the

Indian computer market.

Another aspect of the transformation is that the bureau is equipped with a new Indian small business computer made by a company with the unlikely-sounding name of Dehi Cloth Mills, DCM.

Best-known for its textiles, DCM's range of activities is comparable in scope to those of the other giant Indian industria and trading houses like Tata and Birla. It was founded in 1889 and is the fourth biggest conglomerate in India.

It has an annual turnover of some 550 crores of Rupees (£310 million) and its interests include sugar, rayon fibre for tyres, foundries, chemicals, oil, fertilisers, breweries, sewing machines, refrigerators, fans

DCM has had a licence to develop and manufacture minicomputers for about eight years (CW, July 11, 1974) and design work on the product, called the Galaxy 11, began in 1975. It was launched in 1978 and over 40 have been sold.

It is a 16-bit TTL processor, apparently not microprocessor based. It comes with up to 64Kbytes of main memory, up to eight Memorex floppy disc drives, up to 16 locally-built VDUs and two disc drives will be

DCM plans to offer 35 and 70 megabyte drives. The printer runs at 750 lpm, and is assembled by DCM from Centronics

DCM does use the Intel 8080 microprocessor in other pro-ducis. These include a Spectrum line of microcomputers and a data entry system called Daten 3, which is an off-line key-tofloppy disc data entry and etification station.

Hyderapad. "We wanted to buy from a Both the Daten 3 and the Galaxy 11 use a large-character strip display for operator guid-ance. private company, because we

jor road named after Mahatma
Gandhi; despite the intention to

DCM is stationing as dervice engineer in the city and opening an gineer in the city and opening an We will primarily be serving

> ile radius," says Surendran. own messengers, and we will return it to them using our

is as notorious for its overcrowded poverty as it is celebrated for its exceptionally high rate of literacy. While the latter continues,

customers in the Cochinthe former is changing as money from the oll-rich gulf Ernakulam area, but we will states begins to filter back. "Customers will send their work to us by train using their

A sign of the rebirth of the Kerala economy is the fact that the first commercomputer bureau opened in the state earlier messengers to give them the this vear — with Indian defastest possible turn-round signed and built kit.



South Indian state of Kerala

Report by Tim Palmer

IBM trained man leads in technical expertise

Accounting and Management Services resides with Ambat Radhakrishnan.

"I was trained by IBM 15 years ago," he says. "I spent seven years with Electronics Corporation of India, and have experience on both IBM 1401 and the ECIL TDC machines. I worked at the Cochin shipyard, which has a 1401 and a TDC-312." The

TDC-312 is a third generation mini developed in India and similar to the 12-bit Digital DCM is helping us with pre Equipment PDP-8.

"Our first two customers are a bank wanting an inter-branch reconciliation system, which will take us about one month to write, and a firm of tex auctioneers which wants an invoicing

"We will write all our own applications software according to what our customers want.

work. The operating system, one language and utilities come with application software. 'The machine operates i both interactive and batch

gramming and development

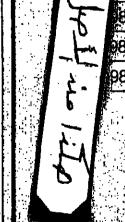
mode, but we shall be using it interactively. The only language at present available is RPG-I but a version of Basic called G-Basic will be available

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733 ASR			2250	1575



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by Owen Hanson and Norman Revell

KEITH JONES TALKS TO TWO LEADING AS CUSTOMERS ABOUT THE AFTERMATH OF THE ITEL COLLAPSE

Why National users are now taking an independent line

BRIAN CROWE and Donald Stott are two of the leading lights in the small but growing Independent Computer Users Association, the group that of the IBM compatible Advanced System mainframes sold by National Advanced Systems.

National Advanced Systems is the wholly-owned subsidiary of took over the marketing of the Advanced System range — Including the big machines built in Japan by Hitachi — last year from Itel after Itel had run into dire financial straits.

Discussing the subject of National's sales performance with Advanced System machines since it took over from Itel, Brian Crowe of insurance broker Frizzell, pointed out, "As n user group we ask National from time to time about their UK orders to see how they are doing and to make sure they are not going out of business. Sales have picked up here since the days of the Itel crash, but National's AS business in the UK is still slow compared with other countries in Europe."

More reassuring. Donald Stott said that the investment analysis at his own company. the Co-operative Insurance Society, had looked at Itel at the time that the Society bought its Hitachi machine from Ital, and at National after it took over Itel's AS marketing operation.
According to Stott their report
on National inspired more confidence than what they had said

Stott remarked, "The National chairman, Charlie Sporck, gave me the impression when I met him that National is a sober company that is not going to do ...

The smaller AS machines, which are built by National itself. and which were renamed the AS/3000 and AS/5000 earlier. this year, are regarded now as being somewhat behind the IBM 4300 series in technology and also behind some other plug-compatible machines like the Magnuson M80 family and the machines built by IPL

The view of both Crowe and Blott was that the technology: nside the box was irrelevant as one as it did the work required; in the US, so it looks as the



Brian Crowe, data processing manager of the Frizzell group, and chairman of the Independent Computer Users' Group, plotured with his AS/5000. "Sales have ploked up here since the days of the Itel crash, but National's AS business'in the UK is still slow compared with other countries in Europe," he says.

and we would like National to be more specific about that growth path." The 7000 DPC is the dual processor version of the AS/

Following the interview with Crowe and Stott it was reported that the "Lightning" large-scale processor development project had been scrapped by National

> It is National's responsibility and National's problem to catch up with:

IBM. It is not a problem for users, because users could always go back to IBM or change to another PCM If

brochures detailing the quality control they employ. The range of temperature testing was fantastic. IBM are not in the same Stott also pointed out that his

own conversion job from the non-virtual operating system, MFT, to MVS last year was helped enormously by the fact that MFT can run on an AS/7000 (AS/6) in native mode. MFT could only have run on a 3032 under VM, of which the Cooperative insurance had no experience, and special software would have been needed to pro-

vide the necessary error messages. The software would have been a reworking of some US error message software developed in the US for running MVT on the 3032, IBM UK offered to carry out the reworking for the Co-op Insurance on a

According to Stott, the MFT to MVS conversion proceeded very smoothly over about four

in the US, 80 it looks as though that it the work required in the difficulty was significant if it the US, 80 it looks as though that it the work and the work and the work of the machine.

Asked how much AS users knew about National's development efforts to catch and on or overlake the 4300 saries. Cower commented "National's not properly of the interest of the interest of the work of th

Choice. There have also been some informal talks with AS/ 7000 users in France. But sur-

Crowe commented, "We think users on the Continent should get together with each other."

prisingly there is no counterpart of the ICUA in any Continental country, not even in France or West Germany where there are

The UK is also the only major

European country with an independent country-based IBM user

accept the use of an IBM operating system as the qualification for membership vhether or not the user runs it on an IBM processor. He pointed out that some IBM CUA members felt strongly that PCM more AS users than in the UK. users should be allowed to

remain in the IBM association. Crowe and Stott both emphasise the complete freedom from interference by National that the ICUA enjoys.

National's customers can stil

CUA had then.

Crowe said, "At our meetings we can discuss topics like other group, the IBM Computer Users' manufacturers' plug compatible equipment completely freely,"



Press reports last year about itel's spectacular finance collapse and hurried exit from the computer business well have given the impression that users of itel Advantage of the street of the stree the lurch with no support for their IBM compatibles

The reality was a lot different. Most of the Itel support staff stayed on and it appears that most AS users has noticed the difference last September when National Semiconductor took over Itel's AS sales and supply operation and set up a wholly-owned subsidiary, Nation Advanced Systems, to run the business. In fact, manyung were pleased that the firm that had built their mather. had started to support them directly.

Keith Jones talked to two leading AS users, Brian Cross of insurance brokers Frizzell, and Donald Stott, data pa cessing manager of the Co-operative insurance Society The latter was the first UK organisation to install one of large-scale IBM compatible machines built in Japan's Hitachi and now sold by National as the AS/7000.

Donald Stott was the first chalrman of the A8 user ## originally called the Itel Computer Users' Association was renamed the Independent Computer Users' Asso tion after the National takeover and Brian Crows & current chairman, explains here the aims and activities the ICUA and why the name "Independent" was those

members have belonged to or still belong to the IBM Association and Stott, who was the first at National offices but always. chairman of ICUA, was also one either a hotel or a user's mi of the original members of the IBM group in the early Sixties. He feels that the ICUA these

ICUA are held every few wat days has the same fort of inforat different locations allow? mal atmosphere that the IBM country and general meet take place at six-monthly by vals. The last general meth Both the Co-op Insurance and Frizzell had to relinquish their IBM CUA membership when they replaced their IBM CPUs was on March 18 at the Min Royal Hotel in London. The mal proceedings included with AS machines, and Guide, presentation of six short ox the IBM-sponsored user group, on relevant topics each of a ls even more strict about excluding PCM users. However, sion. Subjects included and some PCM users including sentation on conversion to live given by one of Stott's stalling. belong to the IBM CUA and Manchester and a paper Guide if they continue to possess microcode from one of Nu one or more IBM CPUs in addinal's personnel.

tion to their PCM machine.
Stott's personal view is that According to Stott, the Guide and the IBM CUA should code talk dispelled a lot of a mysteries and fears surrouse the subject

Crowe sees the main value the ICUA as a forum for met people and exchanging w At the same time the ICM engaged in more concrete a specific activities like came out a survey of members a on the standard of custom gineering services provide National.

It is also producing ad of all the different types kit used by members.

On the question of while users of big IBM machine should wait for the inti of the forthcoming IBM before purchasing a new system. Stott pointed out, "One state know has paid more render 3032 because he is walling the H-series than the louis of an AS/7000."

At the Co-op Society IBM these days is nor supplier, the only remain IBM, let being the line place. card I/O equipment. Mark readers and some in controllers. And Stott feets fident that IBM will nove hasty on users like the by withdrawing ham maintenance

According to Stolt Bullet operative even in the hannél problems.

On the software side in does not believe that miles destroy its PCM competing introducing software of a ware that will be impossible any permanent arising.

He remarked of canes how (BM can knock of PCMs in the look stall utology '

ADVANCED FILE DESIGN—Part 12

Pempherals ÇPU Software

Designing Telecommis for the online environment

examine some of the practical factors which need to be considered when designing a file system in an online environment.

There are two fundamental design parameters for any online system, I the availability and 2 the response time. Thus we may say that a given system has to provide a mean response time of two seconds or less and an availability of 90% for example, in order to be acceptable to its users. These design narameters need to be translated nto a design involving the files, programs, terminal equipment and so on, that the system will.

Though we shall be mainly concerned with the file system, the techniques that will be covered can be extended to other aspects of online system design. In this part we shall concentrate

What is meant by system availability? The availability of any technological system α is

Diagram 2. A series of connection units.

Total availability

 $A = \alpha_1 \times \alpha_2$

 $=\alpha_1 \alpha_2$

 α

 α

Availability

 $A = \alpha (2-\alpha)$

Diagram 3. A parallel (duplexed) connection of units

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MTF+MTR

Thus if the mean time to fail of a disc unit were 1,000 hours of use, and the mean time to repair were five hours, the availability of the unit would be

- **~** 0.995 or 99.5% 1.005

Calculation of the MTF and MTR may be carried out in practice by observation and neasurement, though of course if new equipment is being considered it is necessary to obtain figures direct from the manufacturer. This is often easier said than done, since manufacturers are reluctant to reveal these figures.

An important aspect to consider in calculating the MTR is any waiting time spent until an

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d modeling system

system element whose availability is 90% then the duplexed availability becomes 0.9(2-0.9) = 0.99. This is shown in Figure 3 where the normal convention of showing duplicated elements in parallel is il-

As a further illustration, if we were to duplex both elements of This is shown in Figure 4.

blocks of series and parallel work for complex configuraavailabilities calculated

When designing the files sub-system for an online system the

mean time to fail and mean time to repair the equipment. Even if these files to be available. Using it only takes 10 minutes to the availabilities shown in Figchange a defective circuit board, pre 5 a total disc subsystem if the engineer takes two hours availability is derived. to arrive then the MTR is 2 hours in this example the fourth

> gineer if the installation is large enough to justify one.
> In considering the application of reliability factors to the design of an online system, the old principle that "A chain is only as the disc drives should need to be trong as its weakest link" pplies. An online system may be viewed as a chain of subsystems each of which must be

> ments in a typical system are tinue processing after a single shown in Figure 1. Suppose now that we have a drives were made switchable system of just two elements whose availabilities α_1 and α_2 are the system would be much more known, see Figure 2. From the resilient. rules of probability the

> availability of the system $A = \alpha$ × α . Thus if each element had an availability of 90% say, then the system availability would be 81%. In order to make the system more reliable it is necessary to is given by $(2-\alpha)$ thus an ele-duplex the weaker parts of it. is given by $(2-\alpha)$ thus an ele-ment whose availability is 90%

vided then the probability of either element not being available is $(1-\alpha)$ and the probability of neither being available is $(1-\alpha)^2$, thus the duplexed availability is $1-(1-\alpha)^2=$

For example if we duplex a

Using these two basic building

same principle applies. For example, suppose we had two banks of four disc drives, and each bank were conhected to the CPU via a fully switchable channel and control unit. Further let us suppose that the files to be referenced occupy a whole bank of drives and that

10 minutes. This illustrates one of the benefits of a resident enthe weak link of the system. In practice therefore it is important o design the files so that a "graceful degradation" is possible, and not have the rather stringent requirement that all of available for the system to func-.

If the master files were spread over the discs in such a way that working for the total system to only part of the system were function correctly, and the ele- lost, and it were possible to conbetween both control units, then

A basic design question which needs to be answered is, "Which element is it best to duplex?" Using the formula previously derived, the improvement in reliability obtained by duplexing If a duplicate element is pro- would improve overall system availability by (2-0.9) or 10% if

it were duplexed. As would be expected the biggest gain is to be derived by duplexing the weakest link, but this is not the complete picture. An important item to consider is cost. When working out the improvements, it is possible to define the "best buy option" by dividing the cost of each element by the percentage improvement in system availability obtained

through duplexing.
For example, a disc controller costing £10,000 and having availability of 99% would provide a 1% improvement in systhe first example the total system availability at a cost of tem availability becomes 98.01%. £10,000, whereas a disc drive having a reliability of 90% at a cost of £3,000, say, would provide an improvement of 10% at a cost percent of £300.

A further factor which should tions can be drawn up and total be considered as part of the cos-

BASIC FILE DESIGN

A new impression of Basic File A new impression of Basic Fle Design is now evallable and copies may be ordered from the General Sales Manager, IPC Electrical and Electronic Press Ltd., Dorset House, Stamford Street, London SE1, 9t.U. Tali 01:281 8643, Price £1, 90 each

and thus should not be a major factor in the design calculations of reliability. In fact for many used perhaps for some other mini and nacro systems these application, then an allowance should be made for this when components are integral with costing the effect of duplexing.
This same principle cun, of the CPU.

course, be applied to triplexing or even quadruplexing vital elements in a configuration. though the benefits are likely to be very marginal for most commercial systems.

For a unit which is triplexed

the availability is $1-(1-\alpha)^{\frac{1}{2}}$ which for a = 90% gives an availability of 99.8% (as opposed to 99% for duplexing).

In making a choice of file organisation for an online system reliability theory calculations can be applied to such factors as partitioning of master files. using a separate disc of indices,

A practical point worth noting is that with current technology, disc controllers and channels will normally be very much units which have moving parts,

Another significant factor to be considered is software not normally duplexed though the availability factor could be measured in just the same way that hardware reliability is mea-To summarise, therefore, we have seen how reliability calcu-

lations can influence the file hardware configuration and or ganisation of the files in an online system. There is nothing to prevent the same techniques being used for a batch system where a requirement for high availability exists — it is just that much higher MTRs can normally be tolerated in batch systems. In Part 13 we shall examine how simple queueing theory may be applied to file processing in an online environ-

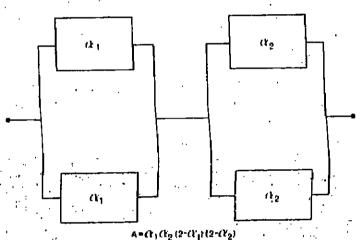
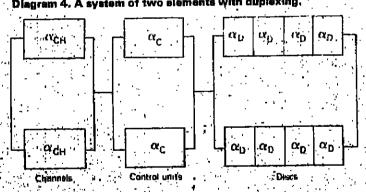


Diagram 4. A system of two elements with duplexing



iDisc subsystem availability * $\alpha_{\rm C}(2-\alpha_{\rm C})\alpha_{\rm CH}(2-\alpha_{\rm CH})\alpha_{\rm D}^4(2-\alpha_{\rm CH}^4)$ Diagram 5. A typical disc file subsystem.

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Pitfalls you may encounter when planning for PoS

store breause the size of the store and the location together with the quality of its merchandist are more prone to a national interpretation than a supermurket which mainly stocks

For example, in the early 1980s the French started to build shopping centres, each with several department stores, in the suburbs of many towns. In West Germany and Holland there has been a trend towards siting new department stores in the centre of towns, either by renovating existing buildings or by acquiring and then clearing

erably from country to country even within Europe; this is especially true for the department later to the department later to

lopment of national differences comes about because most retailers tend to operate only in their own country, with the major exception, perhaps, of The control of department stores tends to be centralised in

most European chains although most of the text book computer configurations are to be found installed in somebody's shop. Other problems that department stores face include how many of one particular item

should be stored in a warehouse

and how many should be sent

optimise picking lists in the various warchouses; and how to minimise mechanical handling within the warehouse and also delivery costs outside. But those are the organisational problems. The collection of purchasing data and its subsequent processing to produce an information flow is just as important.

Given an up-to-date flow of information, which is based on the minute-to-minute data that the computerised terminals at each check-out have generated. the modern shop manager is able to help the buyers to

improve their decision making. In the past and, no doubt, in a few present-day shops the buyers were despots in their individual sections. If they liked omething they bought it and if they did not like it no amount of persuasion could change their

No doubt many of them had flair and a talent which could react to all sorts of signals that would soon confuse a computer and so they would end up by beating any machine-based system. But many were not, and those that were highly successful could always leave and

> and others sluggish returns. Allders of Croydon, Surrey is an example of a department store chain which has adopted computers in retailing in order to take advantage of this flow of information. The system is centred on two Digital Equipment PDP 11/70s at the central site at Hackbridge. Each store is linked by leased lines and VDUs.

start working for a competitor

which would immediately cause the original employer a double

Nowadays the competent

manager, who has the advan-

tage of a computer based sys-

tem, would acquire new stock by

buying a few of a new line

furniture or shoes, and then

examine the sales data from his

nothing, but if it is high he

orders more before his competi-

tors can respond. He is also able

to distribute it geographically if

ome branches report brisk sales

If the response is small he does

When the system was deligned, various files were estaolished using codes for each tem that is stocked.

As the business does not include groceries, Allders had to start from scratch and so established a 12 digit stock keeping unit (SKU)— three digits for the department (eg menswear); two for the category, (eg shirts); six free format (eg Rocola, blue, size 16); and a check digit. About 200,000 SKUs were needed.

The hardware at each store is extensive. The appropriate number of ICL 9500 point of sale



Figure 1. This is a typical receipt from an Aliders store showing the

erminals are clustered round an ICL 1501 computer which is linked in turn to a PDP 11/03, The PDP 11/03 was supplied seas branch at Cannes, the Capty Gamma Telecommunications then played back at the Capty of the played back at the p and is supported by discs, a bridge headquarters where the communications controller and is a 48K NCR 8200 operated a printer. It provides each under B3 and a 32K NCR CS printer. It provides each

store's link to Hackbridge. One characteristic of the ICL terminal which impressed technique an NCR package Allders was the way that the keyboard controls were lit from within the keyboard itself, and designed to that a little of the little o from key to key to act as a guide for the operator while the sale was keyed in.

This approach has the advantage that the sales person does not have to look up in order to check what is appearing on

NCR's expense, to sort It of That resulted in substantial One of the most controversial points that managers of department stores must decide is which style of sales ticket to adopt. Should the tickets that Also, there are problem extending the system, between the 280 is being phased out in favour of the 18 which is incompatible with the 18 incompatible with 280-based system. extending the sphere of the sp

Thinking of Installing a point of sale system? In the third part of his feature on the subject Nicholas Benwel gives guidance on some of the pitfalls to be found

when taking the plunge, Benwell looks at store who have gone for com-puterised point of sele sys-tems and concentrates of those who have opted to

OCR based systems.

Benwell is a senior keturer at Cranfield institute of Technology, near Bed-

Our ploture shows one of the NCR 280 terminals of the type which Belfast Lines him concentrated on.

At Allders it was decided, and studying the options, that own five-year period the high coad magnetic tickets, plus the lor cost of magnetic ticket reaks cost of OCR tickets and the by cost of OCR ticket readers. T computer therefore picked 🖼 OCR option because it we already producing purchase orders for its goods and con easily change some of the tries on those documents OCR A fount. By doing that a automatic and accurate date entry procedure based on the

Belfast Linen, which oper

15 drapery stores in East Angli

has mixed feelings about the computerised tills. It has booght

about 29 NGR 280 retall to minals and each of them galle wanded information from lab

and then records it on the cassette which is contained the terminal. The printer on the

till then automatically produ a customer receipt. The cassettes are colle

regularly by delivery vans (end

from the company's only orders seas branch at Cannes) and at

tury 100. Here Orbit (order billing in

David Cochrane, who ! fast's secretary, was less the

fully enthusiastic about the

scheme when it was first sell

because the software that provided was very weak and bureau had to be called in a

pected to wipe out profit in the second half of the year. The company is in defence documents was established. Other documents - sets of equipment and facsimile machines, some of which are sales bills, credit card paperwind that are involved in the information. marketed by the National Enmation flow are also curre時 terprise Board's Nexos office being investigated from it ystems company. . same point of view.

Tyco Laboratories of the US has a 23% stake in Muirhead, and City gossip has blown hot will launch a bid for the rest of

Selling its ICL shares did at least allow it to cut its borrowings and associated interest charges, and some of the money has clearly gone into the necessary activity of selling or closing down lossmaking parts

The results which set the electricals sector of the stock market alight on Thursday and caused the Plessey share price to Jump 18 pence to 178 pence were a rise in pre-tax profits of 29.9% to £10.1 million on turnover up 9.7% to £751 million. The boost in profits was an

ironic after-effect of strikes which hit Plessey earlier in its financial year to March 31, 1980. In particular, main exchange deliveries in the last four months of the financial year were a big profit contributor.

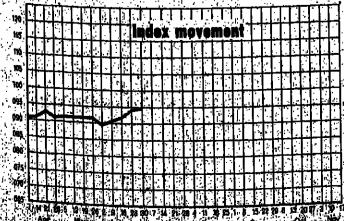
sector of the company's business, sales were up nearly 18% at £123.6 million, and operating profits up 12.8% at £10.2 million.

ITALIAN manufacturer SGS-ATES is to second source production of two vices, the MK5156 codec and the MK5912 switched capacitor

CW SHARES TABLE

Pence	London Stock Erchango	Pance		New York Stock Exchange	١ .	
1980 (ligh Low	Stor).	Price C'nge	19 6 0 . High Lav	Sige	Price	Cingo
SER TENERS OF THE SERVICE OF THE SER	10th, 151 255 CC, (25p) fictorsateou (10p) fictorsateou (10p) fictorsateou (25p) Milloredis (45p)	30, 24 (34 (2) 100, 2) 100, 2 100	107 14 14 177 18 13 18 13 18 13 18 15 15 15 15 15 15 15 15 15 15 15 15 15	A Automatic Date Proc Buroospha Computer Separors Control Date Digital Equerment Herris Howlest-Packar Harris Howlest-Packar Homes H	18-78 18-78 38-83 64-7 87-16-7 18-7-16-7 18-7-8-	3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

he table shows the closing prices in London and New York at the end of last week. The share index is based on the prices of the UK companies in the



interests. Fortunately the government has belatedly arrived at the right decision,

The protracted uncortainty over Far-ranti's future was potentially demoral-ising for management and damaging to its money as possible from the sale of the NEB stake should be tempered by con-

Siddeley or whoever — without giving Ferranti the chance to sink or swim on its

own was clearly wrong.

The case of Inmos is less clear-cut but now that the first £25 million has been

Enterprise Board — with a one

for one rights issue to raise

Ferranti wants the extra

capital in part to fund a £19

million investment programme

this year. Involved are new

building and plant re-equipment at Cwmbran and Bracknell, and

enlargement of its factories at

about £20 million.

pravious government to provide a further £25 million should be mot. Inmos does not look a particularly good gamble at present, but then nor are Premium Bonds. Yet taxpayers who put money into that doubtful government bet would surely regard inmos as a worthwhile national

Plessey turn-about Revised offer Ferranti now No 2 welcomed by City

management, but Ferranti's problems in 1976 came as close to being the result of sheer misfortune as is possible; the effect

on the property creek on its bankers as much as its own difficulties forced it to

PLESSEY really does seem to have turned the corner at last and the year-end figures were greeted with delight on the Stock Exchange. One of the high flyers of the 1960s, Plessey's star looked increasingly tarnished as the 1970s wore on, but the company now seems set to regain its high-flying status in the 1980s. Ironically the nadir of its doldrum period appears to have been the time when it sold its big stake in ICL, a move which did not look good at the time.

Muirhead first half spoils the picture

FINAL figures from Plessey. Ferranti and Racal ranged from good to excellent, but Muirhead spoiled the picture with a rotten first half. In the six months to March, profits drained away to £29,000, compared with £931,000 in the same period last year on sales which were 7% up at £11.86

COMPANY NEWS

THE government's dithering and delay over the National Enterprise Board's stakes in Ferranti and inmos is a disgrace.

Uncertainty over what to do about inmos uncertainty out the was no

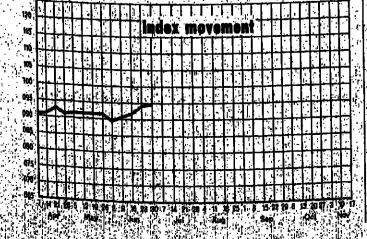
Companies usually run into severe nancial problems as a result of bad

In the office, data and control Muirhead is going through the pains of reorganisation and rationalisation, and substantial non-recurring costs are ex-

Second source for Mostek devices

filter, after developing them to suit the European market.

rince	Landon Stock Erchango	Pance	- *		New York Stock Exchange		
1980	Stock.	Price C'nge	1960	-	Sicc	Price	C nge
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for EMI scanner side

their original agreement from the US Justice Department, Thorn-EMI and Goneral Electric have revised the terms of their £16 million deal to transfer the loss-making EMI scenner busi ness to the US electrical glant. Undor the revised agreement

GE will buy the factory is Radiett, Herts and the sales and GE will not now take over the

US operations of the business, which include sales, servicing and inventory. The revised price has not been disclosed. Wythenshawe, Cheadle Heath and Scotland. take place since the National

UK computer firm profit up 12% at £11.2 million on assent. The NEB offered most of turnover up 12% at £215 million ats 50% holding in Ferranti last week — and simultaneously through a group of stockbrokers surprised its shareholders -

on Monday. Buyers must agree to hold the shares for at least

The computer systems division of Ferranti has been creeping up the company's "league" table and now stands at the head, with turnover last year of £81.8 million, 41% ahead of last year, making Ferranti the uncquivocal number two UK computer company behind ICL, with turnover substantially greater than US minimakers like General Automation, Computer Automation, and Modcomp.

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month to month; one minute word processing the next.



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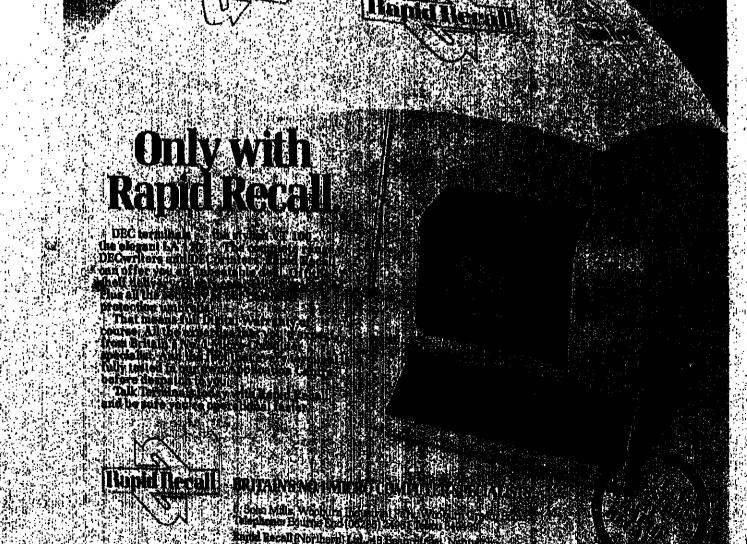
taking orders and printing out involces.

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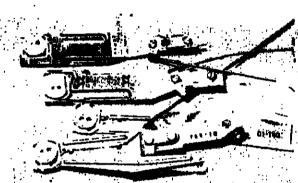
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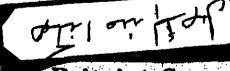
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REF: 5/625

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REF: 5/602-6

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C. 29,000

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The company requires a PROJECT MANAGER to head up the Group Pensions Scheme application. Experience of the introduction of a major new system should be backed-up by the man-management skills needed to lead a team of professionals. Close liaison with all levels of user management will be involved and therefore good communications skills are essential. Experience of On-Line Systems/Database would be an advantage.

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'REF: 5/634

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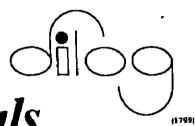
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Special Editorial Feature - July 24 Issue

COMPUTER WEEKLY — Britain's largest circulated computer publication — will publish a special editorial feature in the July 24 issue designed to outline the career opportunities for fully qualified and experienced data processing personnel in HOLLAND's expanding computer industry.

The current international shortage of data processing staff is likely to remain a problem for the foreseeable future becoming increasingly acute with the growth of computer installations. The prime objective of this feature will be to create a greater awareness amongst readers of COMPUTER WERKLY of the scope and job opportunities available in Holland.

COMPUTER WEEKLY has an average circulation of 91,656 (ABC July Dec. 1979) the largest of any other computer publication in the UK Readership extends to all sections of the industry particularly amongst Data Processing Managers, Systems Analysis, Computer a Programmers Computer Staff and bales he presentatives.

If you are currently looking for permanent or contract staff why not take advantage of this special feature and advertise your requirements to the U.K. market place through COMPUTER WEEKLY. A special section titled: "Career opportunities in Holland" will be included in the issue drawing attention to your

Advertisements can be accepted up until July 18 although advanced space reservations are advisable. Rates are based on £16 per single column centimetre. COMPUTER WEEKLY is printed little process therefore no blocks are required. There are seven columns to each page measuring 39cms long 1 col width=39mm, 2=82mm, 3=126mm, 4=168mm, 5=211mm, 6=254mm, 7=296mm.

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the newspaper computer people rely on

In other words the older

One of the problems I am scale, a person in his or her often confronted with is the client's reluctance to con- early twenties seeking a sider salesmen above the selling role and having no age of forty. track record at all may be There is without any quite acceptable by virtue

doubt a prejudice on the of their human characteris-part of many sales tics and academic qualificamanagers against salesmen who have achieved middle age. (Whatever that might salesmen are, the more their bel) Where it stems from I experience needs to be don't know, other than broad and relevant. or personal insecurity.

I have often heard the expression "Selling is a young man's job." In my first selling job I was exstupidity, lack of experience Let us consider the situation from a broad standpoint. There is no age group pected to achieve 150 sales which has a monopoly on calls per week! I can't say that I would relish the lazy sods. In general terms the individual either has or thought of expending so much energy for such little has not industry, selfmotivation, enthusiasm, return today, but I like to commonsense, initiative, think that is a function of etc — from the cradle to the experience and common grave, The "Old bull and the sense rather than a need fo young bull" syndrome is We have put many ma very pertinent to the selling arena. (Surely you know ture guys into senior selling that one! In essence — roles over the years of Young built to old built whom I can honestly say

"Let's run down the hill and their average level of sucscrew one of those cows." cess and stability has been Old buil to young buil: "No. of a higher order than that Let's walk down and screw of counterparts in their The typical salesman A few weeks ago had the starts his sales career pleasure of meeting a sales-

pleasure of meeting a salesman whom we put into his present job when he was in his middle fiftles. He joined

but of course most salesmen 'never make it that far. I would guess the chances are not better than one in six, so what do these people with such prejudice imagine happens to the other five? It seems they have achieved the point popular belief tells us is the stage at which the

that old song proclaims.

Some sales managers would rathen have us believe iffat. It is the end of the road. It is the end of the road.

Age is very much an emotive topic with heavy.

Subjective overlones. Any ninety year old will refer to their offspring as youngsters. Age, from the standpoint of the individual, it relative. Youth could be described as ten years younger than whatever see

younger than whatever age BEAR in mind that there are you happen to be at the five vertices, and also that time.

THE SALES BIT

Uvercoming age

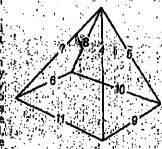
AS I am sure most readers perience qualifications in have known for a long time, terms of selling product and I work for a company called application must be a per-Sales and Marketing feet fit. At forty he must Recruiters. This brings me have extensive selling ex-into regular contact with perience and have a thosalesmen of all types and rough knowledge of the levels of experience, and my marketplace, although job is to both guide them in some shortfall on either career terms (as opposed to product or application is shoving them into jobs!) and seek out the right kind both. Forty-year-old of job opportunity for the trainces are not usually a maximisation of their very smart idea in the con-

them all!") around the age of 25.

Assuming a retirement age of 65, he is only half-way through his career at 45! hrough his career at 45! a hard-hitting, heavily It is apparently quite sales-orientated company. acceptable for a sales well-known for its excelle manager to be middle-aged, products and aggressive

stance in the marketplace. They were very uncortain about taking him on when first spoke to them but they gave in to my persuasion. was nice to hear he has below sales quota, and is premature sales senility at currently top salesman.

individual is most able to Puzzle Answer



I am glad to say that very vertices. So "twice the sum rew of my company's clients" of the eight integers" must are prejudiced against any be divisible by 5. This hare prejudiced against any be divisible by 5. This har vertices. So "twice the sum particular age group rows down the possibilities.
Hopefully we have made very considerably, with 4some contribution lowards 11 = 60 and 9 - 16 - 100 as

broadening their outlook in the lowest two valid setsthis context. However of their of these does in
there are some basic ground. The first of these does in
rules that we apply fact give the only possible
Our basic guideline is that solution, with a constant of
agriffy the salesman sea.

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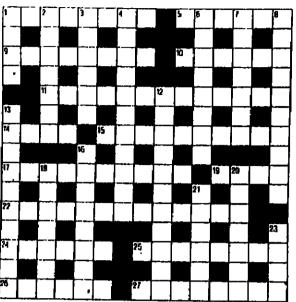
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A PRIZE of £10 will be awarded for the first correct entry opened. The second and third correct solutions opened will receive £5 each. Entries to Crossword Competition, Computer Weakly, Dorset House, Stamford Street, London S£1 9LU, by first post Friday, July 11. Please use a ballpoint to complete the crossword.



Name (Miss, Mrs, Ms, Mr

I accept the rules and conditions of the Computer Weekly Crossword Competition.

Date

Hoaxed - therefore.

holding work up, had a

for parts of a sports

programme (6) Awful dunce, our lad, in

A word of rebuke over

one in exam sitting

our — it's an evil omen

publicity expert experi-

ment on the workers

More than one place where what is lower

gets raised? (5,5) Attacked a ship, one I

disgrace (5,1,5)

DOWN

dripped (4)

Signed ACROSS

l Destructive, endless 1 Parking in the rain, conflict left us ruined

- increase the rate of backing favourites.
- meal (7)
 3 Level the highway up getting ahead (4, 2) Passes on the money from the sale (8) . 10 A great many round
- about all rejected solid alcohol (6) 11 Ideal prediction by prowith instructor (8)
 7 Seize up when in harb-. phet, yet it makes one
- tense (6-7) 14 Dorothy sent back ring, causing a commotion
- 8 Discreet Scot, one who 15 Educational classic, itc, aspires to the Premier-ion ship? (10)

 12 Church members make tho' in need of revision
- 17 Refresher course initially given by former exhibitor (4.6). It's not completely per- 13
- fect, it's thought (4)
 22 Suitable beach pastries produced in irregular :16 bursts (4,3,6) captained (8)

 What a rowdy football 18 A title concocted for a fan may use, to irritate girl (7)
- (6).
 Arrived, in the swirling machine-gue (7).

 Arrived in the swirling machine-gue (7).
- swell acted, gripping machine-gun (7)
 26 A mixed drink, also
 swallowed in the course of retiring (6)
 27 Lily-like plant lad hopes will be propagated (8)

Kulga and Conditions

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1. Each competition may submit in three wheles affecting the purple has a more than one entry.

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1. PDP11/34 Programmers Surrey/Sussox border based company seek programmers with commercial mini computer experience for design projects. Bedfordshire based, Programmers with BASIC Plus experience under RSTS for Benking/Financial projects.

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I. LOPAL 58
London-based consultancy require Real-Time Programmers for micro-based communications and signal processing systems. CW52/

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£10,000+ 3. CORK based Co. requires D.P. Manager for IBM 360 with

4. LIMERICK Electronics firm requires Programmer/Analysts

To £8,000 5. DUBLIN Software House speks Programmers with DEC

6. SLIGO based company requires RPGII Progr £7,500+

7. DUBLIN based Electronics Company requires Bystems.
Analysis with COBOL and manufacturing experience. case apply to Gerald Delamare et CCC at Canberra House, 24 Wer Lesson Street, Dublin 2. Tel. Dublin 7895.77

Slough based firm require ICL COBOL programmers with VME/B or VME/K experience. Driving Licence essential 2. BURROUGHS COBOL London based firm requires 2 years COBOL to assist in the development of a variety of commercial system: 3. UNIVAC 1100 £8,500 + Car London based requirements for programmers with 18 months plus experience of COBOL on 1100 Series 4. NCR Analyst/Programmer London based firm requires NCR COBOL and NEAT / 3 experience. £10,000 Manchester based firm requiring 1100 experience to dosign and implement new real time database systems. 6. Senior Analyst/Programmer To £10,000 London based ICL 2904, small team, minimum 4 years experience in COBOL, RPGII, developing new financial systems. 7. ICL Programmers West London based firm requires 1900 COBOL programmers to work both large 1900 and 2900. 8. Analyst/Programmer Consultant £11,500 City based position, degree plus minimum 2 years' COBOL and design experience + Banking experience. CW 58

Software Engineers

STALOOTINGS HOLD GRADGE REWITED THE ESTOPING

 Analyst/Engineers £9,000
London-based firm require Engineers with degree plus minimum 2
years' experience of Structural Analysis and Design. 2. Electronic Engineers

Porset-based firm require Degree-level Engineers.

3. Software Designers To £10,000 Staffordshire firm require Programmer/Designers for military systems using CORAL or FORTRAN.

4. Assembler Programmers To £10,000

5. Software Designers

6. Realtime Designers West London firm, design of A.T.E. Process Control and Message 7. Design Engineers TO £10,000
Sussex-based firm require experience in high-level languages for Aircraft Simulation Systems, DEC machines.

8. Senior Software Engineer To £10,000 + Car

Overseas Assignments

DM 60,000 + German speaking candidates with experience of mini software or £ Nog. 2. HOLLAND Systems programmers with PDP experience for Real Time Telephony systems. 3. GERMANY IBM DOS/VS Systems Programmers for Hamburg and Munich. 4. FRANCE
IBM Systems Programmers with big machine experience MVS. VM
for large IBM Network. Software Engineers with experience of process control to work on Power Stations systems." 6. SWITZERLAND Real Time telecomms project 7. GREECE Dr 35,00**8** p.m. Fluent Greek regulied for Programmer with CQBOL experience to work on commercial milit beard systems.

IBM Systems Programmer with experience of 05/V81; CICS and pref. DLV 1 for joint responsibility on an IBM 3031

8. SWITZERLAND

6. **0**8/**V**81 Cobol Croydon-based tirm seeks Cobol Programmers at all levels to assist in development of large Real-Time Systems.

7. Assembler Programmer South London based firm required minimum 2 years' experience of OS Assembler for T.P. Systems.

North London-based firm requires good PL/1 experience to work on Real-Time telecommunications systems.

8. DOS/VS Cabel

South Cossi-based firm seeks Cobol Programmers at all levels for development of future IBM 4341.

IBM Systems Programmers

1. DOS/VM Systems Programmer City based, to take full responsibility of systems programming with 2. OS/MVS Expertise

Sussex based, several years' experience required for consultancy £9,000 + Mortgage

4. Real Time Programmer roydon based firm saeks ASSEMBLER expenence for Ostabase

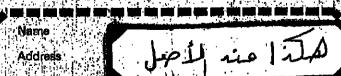
London beset insurance Co. 2 years' experience of Operating systems MVS, TSO, VTAM, etc. 6. MVS Systems Programmers

7. HAMBURG - Systems Programmer DM 60,000 +

370/138, DOS/VS. CICS. Company requires Systems Prog take over this full Junicitori

Central Computing Consultants

8 Lower Grosvenor Place, London SW1 Telex 918582



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Freepost, London SW1W OBR

원인 사람들은 그는 생활하면 생각하는 것

£8,000 + Bonus Berkshire firm require several years of PL/1 experience for new real-time and database systems.

City based, 2/3 years, experience of OS plus VM/370 and CICS pref, DEC Network.

5. Systems Programmers £ Neg. + Martgage

£12,000 London based consultancy requires experienced Systems Pro-grammers for U.K. and oversess sasignments.